

Pacific Seabirds



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Dedicated To The Study And Conservation Of Pacific Seabirds And Their Environment

The Pacific Seabird Group (PSG) was formed in 1972 out of a need for better communication among Pacific seabird researchers. The Group coordinates and stimulates the field activities of members involved in research and informs its members and the general public of conservation issues relating to Pacific seabirds and the marine environment. Group meetings are held annually and the PSG publication, *Pacific Seabirds* (formerly the *PSG Bulletin*), is issued biannually. Current activities include involvement in seabird sanctuaries, coastal surveys, seabird/fisheries interactions, and legislation. Policy statements are issued on conservation issues of critical importance. Although PSG's primary area of interest is the west coast of North America and adjacent areas of the Pacific Ocean, it is hoped that seabird enthusiasts in other parts of the world will join and participate in PSG. PSG is a member of the U. S. Section of the International Council for Bird Preservation. Annual dues for membership are \$20 (individual and family); \$13 (student, undergraduate and graduate); and \$450 (Life Membership, payable in five \$90 installments). Dues are payable to the Treasurer, whose address is on the back cover.

Pacific Seabirds

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Oil Spill Rehabilitation: Beware of Research

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Often, rehabilitation of oiled birds is criticized as being a waste of time and money because individual birds do not contribute to the well being of the species or population few birds survive after rehabilitation and release. However, there have been no conclusive studies which document the survivorship or reproductive success of post-release birds. A coordinated effort on behalf of population biologists and veterinarians who are rehabilitating seabirds could further our understanding of oil impacts. Banding projects and annual sightings of rehabilitated birds with offspring will allow assessment of survival and reproduction years after an oil spill. The information gained from such studies would allow the industry, resource management agencies, the conservation community, veterinarians, wildlife rehabilitators and population biologists to come to some consensus about the efficiency and efficacy of post oil spill wildlife rehabilitation.

If seabird biologists working in coordination with biomedical researchers show that sublethal or chronic effects of oil persist years after spills, rehabilitation protocols can be adjusted accordingly. Such insights will help wildlife trustee agencies complete natural resource damage assessments and lead to meaningful compensation for injuries to marine birds.

Regardless of one's viewpoint, the cost of roughly \$10,000 per bird rehabilitated (Monahan and Mak 1991) is difficult to justify. On the other hand, if an oil spill occurred in a region where, for example, the few remaining breeding colonies of Japanese Murrelets or Craveri's Murrelets exist, I think that most people would agree that rehabilitation efforts should be made. If we know that the population of a species is critically low and 100 birds become oiled, would it not be worth while to treat and release as many of these birds as possible? If for example, out of 100 oiled birds, 50 are released following treatment, and 10 fe-

males go on to breed a few years after the spill and they are reproductively active for the next 5-10 years, an overall contribution of up to 100 offspring would be expected. This scenario does not even consider the reproductive potential of the F2 and F3 generations which could add significant numbers of birds to the population over their lifetimes. In addition, the potential contribution of genetic diversity from these 100 offspring is potentially invaluable to the survival of the species.

We need to increase our understanding of oil toxicosis and the effects of captive management practices while improving medical protocols for oiled seabirds. This will allow all birds to receive optimal care at a price which is more justifiable to the skeptics of rehabilitation, the industry, the general public, veterinarians and wildlife rehabilitators.

For example, research on avian baseline blood parameters currently under way is aimed at improving seabird rehabilitation survival rates and decreasing the costs of rehabilitation. Once established, avian reference range blood values will be used in multiple ways. Upon presentation to rehabilitation facilities, triage protocols will utilize blood values to determine if a bird should be euthanized or if rehabilitation should be started because minimal changes in blood parameters from toxicity exist. This will help ensure that the time and money invested into rehabilitation is focused on those birds with the greatest likelihood of survival.

Two other applications of avian blood baseline values are to monitor birds during rehabilitation and to determine when seabirds have been adequately rehabilitated and are releasable. Historically, blood tests were not routinely performed on birds entering an oil spill rehabilitation center or prior to the release of cleaned birds. If blood tests were performed, reference range values were not available to determine if birds were improving or deteriorating with care. Blood tests are performed on conventional veterinary patients to determine if animals are healthy and can return home. There is no reason why similar tests should not be used to determine when birds are healthy and should be released.

Furthermore, an incomplete understanding of oil toxicosis and the avian immune response to oil has led to a multitude of medical therapies. This often results in

varying costs due to the different methods used to treat birds. Again, understanding both normal blood values and the avian immune response to oil exposure could lead to effective methods for assessing seabird health and efficient treatment methods.

Finally, research should be directed at identifying biomarkers of toxicity. Biomarkers may include serum chemistry enzyme levels, hematologic cell parameters, acute phase protein levels or cytokine concentrations. Traditional veterinary medicine utilizes blood test results as diagnostic indicators of certain diseases or toxicities. A similar approach needs to be instituted for seabirds species. By establishing baseline blood values for healthy birds, we will be able to potentially document biomarkers of sublethal toxicity. A simple blood test could potentially identify populations which may not overtly be showing signs of toxicity, but who may truly be experiencing significant problems. In general, we still do not have a firm understanding of other sublethal effects of oil on seabirds.

In closing, I would like to encourage anyone interested in becoming involved in post oil spill banding projects to contact me. Additionally, if you are involved with hands-on seabird work, I would like to discuss the possibility of collecting blood samples at some point in the future. I am currently working at the Wildlife Health Center at the University of California, Davis. If you have any questions or comments, feel free to contact me. Hopefully, the value of collecting seabird blood samples is clear and the justification of oil spill rehabilitation for seabirds is comprehensible.

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PSG Conservation: Science, Advocacy, and Conflict

John Piatt, Chair

Whereas a stated goal of PSG has always been to conserve seabirds and their environment, our "hands-on" approach to this in the past (with some exceptions) has consisted largely of issuing policy statements and educating others by various means about conservation issues. This has had some measure of success. In the past few years, PSG has taken a more aggressive approach to seabird conservation. Beyond advising others about what would seem to be appropriate conservation activities, we have taken more direct actions as a group. Thus, PSG saw urgency in promoting the plight of the Marbled Murrelet and old-growth forests, and the Marbled Murrelet Technical Committee took action to not only organize symposia and disseminate information, but to develop protocols for censusing populations and locating nest-sites, to criticize management plans, and to get actively involved in the decision-making process of other organizations. More recently, PSG has focused similar efforts on Xantus' Murrelet, and if the action appears warranted, we will petition the U.S. Fish and Wildlife Service (USFWS) to list this species as threatened or endangered. PSG has been persistent (annoying?) in advocating that the USFWS remove introduced predators from seabird colonies in Alaska and has commented extensively on plans by the Exxon Valdez Oil Spill (EVOS) Trustees Council to study and restore seabird populations in oil-affected areas. In the face of some inertia on restoration issues and a perceived need to identify new restoration options, PSG's Conservation Committee successfully obtained a \$75,000.00 grant from the EVOS Trustees to organize a symposium on seabird restoration issues, to be convened in Anchorage in fall of 1995. As an organization, PSG has begun to take a similarly active role with respect to Apex Houston Oil Spill restoration efforts.

Seeing an urgent need to promote seabird conservation activities in other Pacific Rim countries outside the US and Canada, PSG is also making headway in the international conservation arena. We provided modest funding to assist a seabird conservation program in the Philippines. The Conservation Committee recently obtained a

\$25,000.00 grant from the USFWS to be used for support and training of Mexican seabird biologists for conservation efforts in Baja and other areas of importance to seabirds in Mexico. Generous funding from private individuals has also been obtained to support this project. Implementation of this initiative will get underway in conjunction with the next PSG Annual Meeting in San Diego. With modest PSG support, some PSG members went to Japan in 1993 and 1994 to draw attention to the plight of the endangered Japanese Murrelet, participate in and expand upon ongoing murrelet research, and to encourage Japanese seabird scientists to join in various scientific and conservation activities of PSG. Similar opportunities exist for outreach programs in Russia, China, and Latin America, and we have begun in these countries by opening communications and/or supporting travel to PSG meetings for scientists from these and other countries.

One might think that these PSG conservation activities are roundly supported by its members, but that is not the case. During the last few years, there has been a growing debate about the approach PSG should take on conservation issues. Many PSG members are drawn to the organization largely by their academic interest in marine birds and by the opportunity to exchange new research findings and ideas. For some of these members, conservation activities are of little concern. Others in this group think that PSG has an important role in conservation, but that it should be limited to communicating scientific information to management agencies or other wildlife trustees so they can do their jobs, leaving advocacy to individuals or other organizations that are oriented primarily towards conservation. With this long-standing moderate goal in the minds of many, PSG has emphasized science and communication through our annual meetings and publication of symposium proceedings. We can take pride in the fact that our publications are widely used for developing marine conservation strategies by many government, public, and private organizations. More recently, the science side of PSG has expanded beyond traditional academic activities (meetings and proceedings) to the active development of Pacific-wide databases on seabird populations and breeding parameters. These databases will prove to be invaluable for interpreting long-term trends in Pacific seabirds

and their marine environment and will ultimately aid in seabird conservation. Finally, there are those in PSG who think that we should take a stronger proactive approach to conservation—as we have on some issues (above).

Few members dispute the importance of maintaining a strong science agenda in PSG, but some members are concerned about the increasingly aggressive and expanding approach to conservation taken by the PSG. What are these concerns? (1) Science vs Advocacy—some members object to an "advocacy" role for PSG, arguing that we must maintain objectivity to retain our scientific credibility. Will we alienate those agencies responsible for seabird management and conservation by "butting in" on sensitive issues? (2) Relative Importance/Interest—Some members object to the increasing focus of PSG meetings on conservation issues by way of symposia, workshops, etc. This takes time and funds away from scientific activities. (3) Conflict of Interest—Some members are wary or concerned about the manipulation of PSG to promote the agendas of individuals or groups who seek to pressure their own and other institutions to "do the right thing" (as they perceive it to be) and/or to fund research of direct benefit to themselves. (4) Legal Complications—As we become active in the arena of conservation issues, we are increasingly drawn into a legal arena as well. Litigation involving oil spills, forestry practices, endangered species, etc., complicate our interests in these cases. Various scientific data, policy statements, survey protocols, impact assessments, and restoration options suggested by PSG as a group have already been presented, and challenged, in some court cases. We can expect more of this in the future. Depending on where our conservation activities lead us, PSG should also anticipate the possibility of being sued over statements, policies or actions we make on sensitive issues. (5) Personal Conflicts—PSG members have diverse and sometimes opposing opinions about how conservation issues should be resolved. In academic debates about seabird ecology and behavior, one usually welcomes (and more often ignores) opposing opinions. Rarely is more at stake than egos and pet theories. Debate is healthy and, in theory, leads in time to better answers (the Truth?). Conservation issues, however, often demand immediate

actions that have political, economic, professional, and legal ramifications. Because so much is at stake, healthy academic debate can degenerate into polarized argumentation. As PSG members become more involved in various conservation activities, as individuals and as a group, we run the increasing risk of falling into polarized camps on certain issues. This is already happening to some degree, and threatens to tear the fabric of PSG. (6) Procedural Complications—PSG has entered a new phase. We have recently obtained large grants to pursue conservation projects (above). We have also supported some small conservation initiatives from PSG operating funds. We have not yet established procedures to deal with these projects. For example, given a rapid turnover in council members, who will provide oversight for long-term projects? Who will be ultimately responsible for tracking use of funds, writing reports, monitoring progress, evaluating results, etc. How do we avoid conflict of

interest issues? How do we solicit contracts for different aspects of the work? We are working on resolving some of these questions, but much remains to be decided.

There is no question that PSG will continue to play an important role in seabird conservation. At issue is the degree to which conservation efforts consume our resources, and how aggressive we want to be in pursuing conservation goals. We need to find a balance that is acceptable to all the membership. We need to establish a conservation agenda with clearly defined goals. We need to develop a procedural framework for handling conservation projects. We need to develop a strategy for dealing with legal and professional conflicts both inside and outside the PSG. More than anything, we need HELP. At present, the PSG is a completely volunteer organization. To accomplish those goals already on our plate and to expand on both scientific and conservation activities, PSG needs more commitment of time and energy from its

membership. Failing this, I believe that PSG will soon falter and lose the momentum gained over the past few years. If you are interested, it is time to GET INVOLVED. Ask your PSG committee and council members how you can help, then follow through with some action. Provide some input on issues confronting us. Donate a little money for conservation initiatives. Donate a lot of money. Help organize and run our annual meetings. Help produce *Pacific Seabirds*. Submit articles about seabird research or conservation. Sponsor a foreign member. Encourage someone to join PSG. Attend the PSG annual meeting. Attend Council meetings. Contribute to symposia. Join a conservation or technical committee. Identify a new conservation issue and take some action to address the problem. Contribute to the Seabird Monitoring Database. Debate PSG issues in private and public forums. Run for office. Do something. Start now.

1995 Annual Meeting to be held in San Diego

The 22nd Annual Meeting of the Pacific Seabird Group will be held in San Diego, California on January 10-13, 1995. The meeting will include general papers and a symposium on Island Restoration and Seabird Enhancement.

Symposium papers are invited for the following topics:

- Population Assessment
- Predator Control
- Vegetation Management
- Legal Perspectives
- Resource Protection/Oil Spill Prevention Planning
- Oiled Bird Cleanup/Cost Effectiveness
- Habitat Rehabilitation
- Recolonization/Attraction Studies
- Genetic Studies
- Captive Breeding

This symposium will address methods and strategies for restoring/reviving threatened seabird populations throughout the world, especially in Mexico, Alaska, Japan, and New Zealand. Speakers will be invited to attend from these regions. If PSG receives a grant from the United States Fish and Wildlife Service to host twenty-five Mexican professionals and students, we will attempt to make training monies available to a few invited participants recognized as experts in their fields of "restoration."

The meeting will be held at the Catamaran Resort Hotel situated on Mission Bay in north San Diego. The beach is one block away and rooms have beach or bay views. Discount room rates were negotiated for the period of 9-13 January, 1995. Rates are \$89 per night for a single, \$99 for a double, and \$15 per extra person. Almost half of the rooms come equipped with a kitchenette. Food is available at the hotel and other inexpensive eateries in the immediate vicinity.

Airfare to San Diego is relatively inexpensive—add the delicious and inexpensive South of the Border cuisine and you have a working vacation that features ocean, sun, and balmy weather.

Field trips to the Anza Borrego Desert, the Salton Sea, and the Coronados Islands will make this a memorable PSG meeting. A complete announcement and call for papers was mailed in late summer. For more details about the program, contact the program chair, Mark Rauzon, (Phone: 510-531-3887; e-mail: mjrauz@aol.com). For information concerning logistics or volunteering, contact William Everett, chair of the local committee, (Phone: 619-589-0480; e-mail: wteverett@aol.com).



Kittlitz's Murrelet: The species most impacted by direct mortality from the Exxon Valdez oil spill?

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The term "impact," as it relates to species that have suffered the consequences of a catastrophe such as an oil spill, may have numerous definitions, often depending on the spatial/temporal scale being considered. Here we define "impact" as the proportionate loss to a species' estimated world population. We hypothesize that Kittlitz's Murrelet (*Brachyramphus brevirostris*, Alcidae), by this definition, may have been the most impacted species of the Exxon Valdez oil spill, i.e., having suffered higher proportionate loss to its estimated world population than any other species.

Kittlitz's Murrelet is considered a Category-2 threatened species by the U. S. Fish and Wildlife Service (USFWS). It is one of the rarest members of the North Pacific marine bird community, with an estimated total world population of under 20,000 individuals, most of which reside in Alaskan waters (van Vliet, 1993).

After the grounding of the *Exxon Valdez*, 11 million gallons of crude oil were released to the marine environment over a vast area of some 30,000 sq km from Prince William Sound, past Kenai Fjords National Park, up to Kachemak Bay, past Kodiak Island, along Katmai National Park, and most of the way down the Alaska Peninsula coastline and adjacent offshore waters.

This huge impacted area is well known to be the core of the Kittlitz's Murrelet staging, moulting, breeding, and feeding range (M. McAllister, unpubl. data; Piatt, in prep.), containing perhaps one-half of the world's population of this threatened species (van Vliet, 1993).

During the *Exxon Valdez* oil spill, a preliminary total of 67 positively identified Kittlitz's Murrelet carcasses was found among a total of 34,977 carcasses logged in the USFWS Morgue Database (Ford et. al.,

1991; Piatt, et. al., 1990). The numbers of Kittlitz's Murrelets picked up and brought to the recovery centers were:

- 23 - Valdez recovery center
- 19 - Seward recovery center
- 21 - Homer recovery center
- 4 - Kodiak recovery center

In 1990, G. W. Page and H. R. Carter re-examined a sample of 3,378 frozen carcasses (see Ford et. al., 1991). Of 389 carcasses listed as "bird sp.," "small alcid," or "alcid," or additions from omitted carcasses, another 46 *Brachyramphus* murrelets were identified, including 5 Kittlitz's Murrelets, 8 Marbled Murrelets (*B. marmoratus*) and 33 murrelets which could not be identified to species.

A minimum of 446 unidentified *Brachyramphus* murrelets were brought to the recovery centers during the oil spill. Based on previous survey information, 5-10% of unidentified *Brachyramphus* murrelets in the sample were probably Kittlitz's Murrelets (Isleib and Kessel, 1973; Dwyer et. al., 1975; K. Laing and S. Klosiewski, unpubl. data). Hence, 22-45 Kittlitz's Murrelets may be added to the existing 72 positively identified individuals that perished during the spill, resulting in a total kill of at least 94 - 117 Kittlitz's Murrelets. This total may be as high as 150 - 200 birds, depending on possible misidentifications and counting errors.

Since marine bird restoration biologists estimate that only 10% of small diving alcids that died as a result of the *Exxon Valdez* oil spill were actually picked up and brought to recovery centers (Piatt et. al., 1990; Ford et. al., 1994; Piatt, pers. comm.), it appears probable that 1,000-2,000 Kittlitz's Murrelets were removed through direct mortality by the *Exxon Valdez* oil spill. Indirect mortality of Kittlitz's Murrelets due to the cumulative, chronic

effects of oil (e.g., on the digestive, circulatory, osmoregulatory, endocrine, reproductive, and immune systems, reviewed by Burger and Fry, 1993) may have impacted this species even further.

The direct mortality of 1000 - 2000 Kittlitz's Murrelets represents 5 - 10+% of the species' estimated world population (van Vliet, 1993), and suggests that Kittlitz's Murrelet indeed may have been the most impacted organism of the *Exxon Valdez* oil spill, since no other species population is known to have been reduced to such an extent. This intriguing result was predicted prior to the spill by King and Sanger (1979), who calculated that Kittlitz's Murrelet had the highest degree of potential exposure and impact to major oil spills of any seabird in Alaskan waters.

Species that have been identified by agencies as worthy of substantial research efforts as a result of the *Exxon Valdez* oil spill all apparently were reduced by less than the 5-10+% estimated for Kittlitz's Murrelets (i.e., <5% of the estimated world populations of Common Murre (*Uria aalge*)/Thick-billed Murre (*Uria lomvia*), Black Oystercatcher (*Haemotopus bachmani*), Harlequin Duck (*Histrionicus histrionicus*), Marbled Murrelet (*Brachyramphus marmoratus*), Pigeon Guillemot (*Cepphus columba*), Harbor Seals (*Phocinus vitulina*), Killer Whales (*Orcinus orca*), and Sea Otters (*Enhydra lutris*).

Significantly, despite a host of studies to assess and mitigate the impacts of the *Exxon Valdez* oil spill, not one study has focused on the assessment of damage and restoration of what may be the most impacted species, the Kittlitz's Murrelet.

Recommendations:

1. The highest priority is to locate, retrieve, analyze, and publish known transect data and observations of Kittlitz's Murrelets in the spill area collected before, during, and after the spill. Several known data sets that have yet to be analyzed and published contain survey information from immediately prior to the *Exxon Valdez* oil spill in the high impact areas of Kenai Fjords National Park and western Prince William Sound. These data are unique and are critical to any proper assessment of the status and activity of Kittlitz's Murrelet at the time of the spill.

2. The U. S. National Biological Sur-

vey and the U. S. National Park Service need to undertake cooperative assessment studies on Kittlitz's Murrelet marine distribution and abundance, particularly along the coasts of Kenai Fiords and Katmai National Parks (impacted areas), and Wrangell/St. Elias and Glacier Bay National Parks (unimpacted areas). As suggested by van Vliet (1993), the U. S. National Park Service - Alaska Region is quite likely the steward for fully one-half of the estimated total world population of Kittlitz's Murrelet during the breeding season.

3. The U. S. Fish and Wildlife Service needs to initiate a comprehensive survey of Kittlitz's Murrelet in the Prince William Sound Region and along the north-western Gulf of Alaska coastline in order to characterize and safeguard the species' current "hot spots" (i.e., high density areas deemed critical to the species' survival for moulting, migrating, feeding, and breeding purposes).

4. The U. S. Fish and Wildlife Service and the U. S. National Marine Fisheries Service need to conduct a more in-depth analysis of historical and current losses of Kittlitz's Murrelets through commercial fisheries incidental bycatch, particularly gill-nets. Based on anecdotal information but limited data, 25 years of intensive gill-net fishing in Prince William Sound (particularly in the Unakwik Inlet region) and off the Copper River Delta may have chronically impacted Kittlitz's Murrelets to an even greater degree than the acute loss due to the Exxon Valdez oil spill.

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Common Murre on the menu!

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Members of an Anchorage Audubon Society field trip to Seward, Alaska, observed a sea otter (*Enhydra lutris*) catch and eat a Common Murre (*Uria aalge*) on the 26th of February, 1994. Near the loading dock in Seward Harbor, we observed a number of goldeneyes (*Bucephala* sp.) mergansers (*Mergus* sp.) and Common Murres swimming approximately 50 meters offshore. Among these scattered birds were two sea otters. One of the sea otters dived under a lone Common Murre and snatched it from underneath. The otter surfaced almost immediately with the murre's head held firmly in its mouth. The otter floated on its back for about one minute, while continuing to hold the murre's head. The trapped murre frantically flapped on the otter's chest, but soon became calm. The sea otter then grasped the bird in its front paws and held it underwater as it swam. The otter's back was visible above the surface as it slowly swam about 15 meters. The otter then rolled onto its back, and finally released the murre's head. There was no visible surface damage to the now motionless murre. The sea otter floated among the other birds and started to chew on the Common Murre's head, eventually working it's way down through the murre's body. Surrounding birds remained undisturbed.

Riedman and Estes (1990) reviewed previous observations of sea otter predation on seabirds. Three cases have been

reported at Amchitka Island, Alaska, and 20 off the coast of California. The most frequently captured bird in California was the Western Grebe (*Aechmophorus occidentalis*), but other species included Surf Scoter (*Melanitta perspicillata*), cormorants (*Phalacrocorax* sp.), and gulls (*Larus* sp.). Otters typically dive under a floating bird and grab it from underneath (Riedman and Estes 1990).

The amount of nourishment sea otters derive from seabirds is unknown. It has been shown that the flesh from cormorants (*Phalacrocorax* sp.) and Emperor Geese (*Chen canagica*); fed to a captive otter passed unaffected through the digestive tract (Kenyon 1969). Kenyon concluded that birds appear to be eaten only under stress of hunger; particularly in winter.

Male otters appear to be responsible for the majority of seabird captures. A tendency for males to feed upon warm-blooded prey is observed in other mammalian species, such as chimpanzees and some pinnipeds (Riedman and Estes 1990). Particular individuals may prey repeatedly on seabirds. One otter at Point Lobos, California, was believed to have killed up to six birds. It is suspected that only a few sea otters are responsible for most seabird kills. Riedman and Estes (1990) suggest that new foraging strategies, such as preying on seabirds, are learned by otters when they observe each other's feeding behavior.

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The need to distinguish between the Lesser Black-backed and Heuglin's gulls in the Pacific

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It should perhaps be pointed out in connection with the interesting report by Gus van Vliet et al. (1993) of a "Lesser Black-backed Gull *Larus fuscus*... (race *graellsii*)" interbreeding with a Herring Gull (*L. argentatus*) in Alaska that this area might also be visited by the extremely similar gulls of the *heuglini* group of Siberia, now also considered a distinct species by Russian ornithologists (Stepanyan 1990; Filchagov et al. 1992; Bourne 1993), which apparently winters from Arabia to the western shores of the Pacific. Thus an immature bird presumably belonging to the moderately dark-backed race *L. taimyrensis* ringed at the mouth of the Bikada River (E. Taimyr) on 30th July 1977 and found on north Sakhalin on the following 5th November (Filchagov 1992), an adult in wing moult in the British Museum (Natural History) collected at Foochow, China, in January 1896, and birds seen passing through Hong Kong on spring migration in March identified as *L. cachinnans mongolicus* by Kennerley (1987) also seem likely to belong this form.

Gus van Vliet has kindly sent some photographs of his Alaskan gull, which I have also shown to Pierre Yesou, who is studying Herring, Yellow-legged (*L. c. michahellis*), and Lesser Black-backed gulls in their area of overlap in western France and has visited the central Eurasian breeding areas. I have also seen birds from this

area in the Persian/Arabian Gulf in the winter. It is obviously much darker on the back than its Herring Gull mate, and only two forms are markedly darker there while still showing a clear contrast at the wingtip—small *graellsii* (including *intermedius*), and large nominate, western *L. heuglini*. Other forms of the *heuglini* group are smaller and neutral grey above, little darker than *L. cachinnans* and indeed American Herring Gulls *L. a. smithsonianus*. The wing pattern of the bird in question thus agrees with both *graellsii* and *heuglini*, but the elegant silhouette, head shape, and small size, indicate a Lesser Black-backed Gull.

Therefore, it seems highly desirable to record as many details as possible of the appearance of such birds, and if it can be achieved without undue disturbance, catch, measure, photograph, collect feathers and tissue samples, and band them, to discover which populations(s) they belong to before this is obscured through hybridization with local gulls, and their subsequent history and movements.

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PSG News

The Seabird Restoration Committee

I. Introduction: In recent years, damages or potential damages to seabirds and other marine wildlife resources from various perturbations in the marine environment have resulted in much-increased concern to conservationists and resource-management agencies. Although the extent and degree of damages in the past, as well as the estimated times that it takes seabird populations to recover such perturbations have been somewhat controversial (ex. Pacific Seabird Group *Bulletin* 20(2): 58-60), and perhaps also even site-specific, the need for sound decisions, resulting in ecological action and management as well as restoration, if necessary, is clear.

Wildlife and environmental law enforcement efforts (such as done through restoration programs and trusteeships) have recently provided substantial potential support to be dedicated to the restorations of seabird and other marine wildlife populations impacted by various perturbations. It is imperative that resource managers have the best advice possible regarding the kinds of remediation and management that will be most efficient and effective. Marine wildlife researchers, managers, and conservationists are in the best position to evaluate, recommend, and advocate endeavors which will fulfill the intent of the "restoration imperative." Members of the Pacific Seabird Group are in a unique position to comment, evaluate, and recommend actions following environmental perturbations that affect seabird populations.

Individual case-histories should be considered and synthesized from the viewpoint of the lessons learned from them and a synthetic approach sought-after. Intensive restoration efforts should not begin until agencies and/or organizations along with the scientific community have determined that natural recovery will not restore wild populations within a reasonable time.

II. Premises: Regarding seabird restoration and management following perturbations such as oil spills, chemical spills, and other potential population-reducing phenomena, there are several premises which must guide a panel of experts such as the PSG Restora-

tion Committee:

1. The first and foremost consideration is to ensure self-sustaining, free-living marine bird populations and their environs—THE WILD RESOURCE SHOULD ALWAYS RECEIVE THE FIRST CONSIDERATION! Recommendations must be ecologically sound, with a biological end-point in mind.

2. A group of technical experts provides the best evaluations of what and how to do this; and in open and free discussion and debate, can develop the evaluations, the action-plans, or recommendations on the necessary steps that will be best for the continuation and health of this resource.

3. Colleagues are entitled to their opinions as long as they are open and honest; diverse opinions and options will be heard.

4. Assessment, development, and acceptance of remediation and remediation-techniques requires statistical definitions and rigorous study designs.

III. Objectives: More specifically, the goals of the PSG Restoration Committee are:

1. To gather and review existing published and unpublished information and case-histories regarding various remediation and restoration efforts resulting from past perturbations of seabirds and their habitat.

2. To consolidate experts who have technical experience with seabirds, their ecological characteristics, their responses to remediation, and restoration techniques used to remediate population perturbations of seabirds.

3. To examine various technological processes and management objectives with the purpose to achieve biological end-points.

4. To make general recommendations to the PSG Executive Council and general membership (and to trustee agencies if requested or if deemed necessary) regarding if, when, and what types of restoration are indicated. To advise the PSG Chairperson and Conservation Committee Coordinator on restoration matters.

5. To organize and conduct symposia and workshops to be released through the auspices of various PSG outlets; to assist in other information transfers.

6. As appropriate, to recommend research activities designed to evaluate the needs for restoration; to recommend research activities to further develop effective restoration technologies and/or alter-

native strategies.

7. To identify additional means whereby PSG can play a role in the sound ecological restoration of damaged seabird populations.

NOTE: The additional notes attached provide some initial guidelines and questions related to the objectives above and this committee's approach to restoration activities. It is intended that these items be further refined through the activities of the committee. These outlines provided a basis for the initial discussions at the 1993 Annual Meeting of the PSG (Sacramento, CA; 25-28 January 1994) when the Restoration Committee was originated by the PSG Executive Council.

Prepared By: Restoration Committee Coordinator

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Initial Membership of the PSG Restoration Committee*

Daniel Anderson, Coordinator
Harry Carter
George Divoky
Frank Gress
Craig Harrison
Paul Kelly
Kenneth Warheit
Mark Rauzon, ex officio

*PSG seeks additional volunteers for consideration on this committee; contact D. W. Anderson at the numbers given above.

7 September 1994

Note: Dan Anderson is stepping down as coordinator of the restoration committee. Ken Warheit has been appointed as interim coordinator.

John Piatt, Chair



BIOLOGICAL QUESTIONS ASKED WITH RESTORATION IN MIND

1. What are the research needs?
 - A. Baseline data—this is an old MMS axiom that is as important today as it was 20 years ago, especially important is understanding natural variability in ecological systems and components
 - B. Determining the ecological relevance of:
 - (1) the perturbation and
 - (2) the restoration effort itself
 - C. Determining the effectiveness of management through followup studies ("wildlife management and conservation biology as research tools")
 - D. Techniques development and evaluation:
 - (1) prediction of risk (before) or success (after)
 - (2) damage assessment models (biological and economic)
 - (3) develop and test a variety of restoration techniques and strategies
2. What are the management needs?
 - A. Modify and implement management plans:
 - (1) ESA recovery plans
 - (2) state/federal special status plans
 - (3) watershed and ecosystem management plans
 - (4) other management plans
 - B. Apply the best techniques available and affordable:
 - (1) individual health restoration
 - (2) ecological "health" restoration
 - (a) habitat protection and/or restoration
 - (b) population protection and/or restoration
 - C. Risk analysis application
 - D. Cost-benefit analysis and evaluations
 - E. Retributions

COMPLICATIONS REGARDING ENDPOINTS OR OUTCOMES OF RESTORATION

1. What is the working definition of ecological functioning?
2. What is equilibrium?
3. What is meant by a "healthy" ecosystem?

4. What time frames do we want to work in?
5. How much does individual health restoration mean to population "health" restoration?
6. What is the inevitable "restoration" result?

Steady State $t+n$	\uparrow	Steady State $t=0$
Steady State $t+n$	$=$	Steady State $t=0$
Steady State $t+n$	\downarrow	Steady State $t=0$
7. What is acceptable, what is not?
8. When might intensive intervention cause more harm than good?

SOME STRATEGIES CURRENTLY USED IN RESTORATION ACTIVITIES INVOLVING SEABIRDS

1. Do nothing, wait for natural recovery or accept a defined degradation
2. Set up an enhanced research and/or management capability ("beef-up" current operations)(termed "fringe benefits" by some):
 - A. Develop and start new management and research efforts
 - B. Step up enforcement
 - C. Step up monitoring
 - D. Step up an ecological research effort (obtain more "baseline" data for future needs)
 - E. Assist other programs (university, other agency, etc.)
 - F. Enhance an educational effort
3. General or specific control of some competitors or non-native predators, compensate some place else where population enhancement is more manageable
4. Protect habitat
 - A. General or specific land purchases
 - B. Enhance or protect forage and other critical habitat factor
 - C. Mitigate other depredating factors not previously acted-upon
5. Create new habitat
6. Use artificial methods to restore, enhance, or create natural populations:
 - A. Captive breeding and release
 - B. Induce recolonizations of habitat
 - C. Rehabilitate individuals
8. Create compensations or tradeoffs; accept buy-outs (or pay-offs) (i.e., unrelated programs are enhanced)

Corresponding memberships in PSG: A proposal

The Pacific Seabird Group has been expanding its cooperation with seabird researchers and conservationists throughout the world. At the last annual meeting, there was interest in offering memberships to a

limited number of people, particularly in developing countries, to increase this cooperation in areas where little is known of the status of seabirds and where cooperation would be beneficial. Examples of such people include Roberto Schlatter (seabird researcher in Chile) and Wang Hui (who has important observations on seabirds in China). This ef-

fort will also let more people know about PSG. Following the last meeting, John Piatt sanctioned a small committee (Malcolm Coulter (organizer), Craig Harrison, Leopoldo Moreno, John Piatt, Mark Rauzon, and Ken Warheit) to explore ways of offering such memberships to key people in a way that would also be most cost-effective.

At the next annual meeting, we will propose that PSG sponsor a limited number of Corresponding Memberships to involve key seabird researchers and conservationists in PSG. These members will receive Pacific Seabirds and in return will be required to submit a brief report on seabird issues in their country or part of the world at least every two years. To minimize costs, we consider only the cost of printing extra copies of *Pacific Seabirds* and surface mailing.

In order to be in position to follow through with this most effectively at the next meeting, we request members to suggest individuals who should be considered for Corresponding Memberships. Please send the name of the suggested person, the address, and a brief paragraph explaining how this individual and PSG would benefit from this involvement to: Malcolm Coulter, P.O. Box 48, Chocorua, New Hampshire 03817, USA.

Call for papers

Scientific Program of the Pacific Seabird Group will be held from January 10-13, 1995. The theme of the conference will be SEABIRD ENHANCEMENT THROUGH PREDATOR AND VEGETATION MANAGEMENT. A symposium will address methods and strategies for restoring/reviving seabird populations throughout the world, especially in Mexico.

Predator and vegetation management are becoming increasingly important to increase seabird populations as they are impacted away from their colonies by fisheries and oil developments. We will explore the successes and failures of these management techniques as well as offer a training workshop for Mexican biologists and students. Some training money and opportunities will be available to invited participants and recognized experts in the fields of island restoration/pest management through a grant from the USFWS.

The keynote speaker will be Dr. Alan Saunders, Manager of Threatened Species Unit, Dept. of Conservation, Wellington, New Zealand. He will address the factors weighed in management decisions to control or not to control; factors of need, effectiveness, degree of success, cost, public perception. Also scheduled to attend is Dr. I. A. E. Atkinson, one of the premiere island

restoration experts, who has written extensively on the facets of restoration and predator management. Addressing the practical aspects of management will be Brian Bell, a consultant with Wildlife Management International who has dialogued with Mexican authorities about rats on Rasa Island. He is currently involved in translocating shearwaters and eradicating mice from Marion Island, South Africa. Also attending will be Dick Veitch, the New Zealand Department of Conservation cat specialist. He has eradicated cats from Little Barrier Island, perhaps the most important island in New Zealand where the endangered owl-parrots and black petrels reside.

Prospective participants in the symposium or the general paper sessions should complete the call for papers form and mail it to Mark Rauzon, Box 4423, Berkeley, CA 94704 (Phone: 510-531-3887; e-mail: mjr@uic.edu). Poster presentations on all seabird topics are encouraged. A 3' wide X 4" high surface will be provided for each poster presentation. Materials should be prepared with "S" hooks, no push pins or double-sided tape.

Seabird groups join forces

The Colonial Waterbird Society and Pacific Seabird Group will hold a joint meeting in Victoria, British Columbia, Canada 8-12 November 1995. The scientific meetings will be held in the new Conference Centre in downtown Victoria. The theme will be "Behavioral Mechanisms of Population Regulation." Invited plenary speakers, workshops, and paper and poster sessions are planned for three days. A special symposium on seabirds will also be held. Other symposia can also be arranged. Victoria is one of the best locations for birds in Canada, and November is one of the best months to see them. Seabirds, seabirds, and marine mammals abound along the shores of Victoria. Field trips to see wildlife and take in the scenery are planned. For more information regarding the scientific program contact James Kushlan, Department of Biology, University of Mississippi, MS 38677, USA, Phone (601) 232-7203, FAX (601) 232-5144 or William Everett, Department of Birds and Mammals, San Diego Natural History Museum, San Diego, CA 92112, USA (Phone: 619-589-0480; e-mail:

wteverett@aol.com). For information on other matters contact local Committee Chairpersons Rob Butler, Pacific Wildlife Research Centre, Canadian Wildlife Service, Box 340 Delta, BC V4K 3Y3, Canada, Phone (604) 946-8546, e-mail butler@cwsvan.dots.doe.ca or Ron Ydenberg, Department of Biosciences, Simon Fraser University, Burnaby, BC V5A 1S6, Canada, Phone (604) 291-4282

Report of the Marbled Murrelet Technical Committee

Marbled Murrelet Recovery Team - U.S.

The draft Recovery Plan is near completion. The recovery team is making revisions based on discussion at their October research meeting and comments from the new Regional Director. It is expected that the final draft will be available for public review by early 1995.

Marbled Murrelet Recovery Team - Canada

The National Recovery Plan for the Marbled Murrelet was published May 1994.

Publication and Report Updates

Biology of Marbled Murrelets: Inland and At Sea (S. Kim Nelson and Spencer G. Sealy, Eds.) is in press. These proceedings of the 1993 Pacific Seabird Group Marbled Murrelet Symposium will be published in *Northwestern Naturalist* vol. 75(3). Included are 15 valuable papers on breeding biology and nesting habitat (8 papers), populations, distribution, and activity patterns at sea (3), inland distribution (1), and methods for studying (3) Marbled Murrelets.

National Recovery Plan for the Marbled Murrelet. 1994. Gary W. Kaiser, Hugh J. Barclay, Alan E. Burger, Dennis Kangasniemi, David J. Lindsay, William T. Munro, William R. Pollard, Robert Redhead, Jake Rice, and Dale Seip. Report No. 8 Ottawa: Recovery of Nationally Endangered Wildlife Committee. Copies of this publication may be obtained from the Canadian Wildlife Federation, 2740 Queensview Drive, Ottawa, Ontario, Canada, K2B 1A2; telephone 1-800-563-9453; FAX 613-721-2902.

Nancy Naslund, Coordinator

The northern Sea of Okhotsk, summer 1994

Vivian M. Mendenhall, U.S. Fish and Wildlife Service, 1011 E. Tudor Rd., Anchorage, AK 99503, U. S. A.

After five years of cooperation with seabird biologists in the Russian Far East, I finally had the privilege of visiting the area. I spent two months in the northern Sea of Okhotsk as a guest of Alexander (Sasha) and Luba Kondratyev of the Institute of Biological Problems of the North, Russian Academy of Sciences, Magadan.

I flew to Magadan by a direct flight on Alaska Airlines on June 23, 1994, and was met by Sasha. We spent several days in Magadan before leaving for the field. Sasha used the time to complete arrangements for our transportation, which involved lengthy conversations with the captains of the two suitable vessels that were in port. I used the time to read articles on our study areas and to look around town. Magadan was founded in 1933 to serve Stalin's prison camps. The buildings range from wooden cottages on the outskirts of town to ranks of concrete-slab apartment houses. Perestroika and its aftermath have given rise to many lively and colorful small street markets that carry items from local produce and bread to packaged goods from America, Colombia, and Vietnam. However, food and other supplies are extremely expensive in relation to Russian salaries, and stocks are not reliable.

I was fortunate to have several opportunities to watch birds in the forests near Magadan, thanks to my hosts and their friends. (It isn't easy to stroll out on one's own, as I'm used to doing in Anchorage. The woods closest to town now have muggers in them, and getting to rural areas meant taking a crowded bus or finding a friend with a car.) By the end of the trip I had seen 23 new species of birds. Woodland species included Pallas' Warbler (*Phylloscopus proregulus*), Mugimaki Flycatcher (*Muscicapa mugimaki*), and Yellow-breasted Bunting (*Emberiza aureola*).

On 1 July we took the 6-hour cruise southwest from Magadan to Talan Island. From the sea the island looks like a thick mud pie. It is 2.5 km long, with a tundra plateau above talus slopes and spectacular

granite cliffs up to 200 m high. Black-legged Kittiwakes (*Rissa tridactyla*), Common and Thick-billed murres (*Uria aalge* and *U. lomvia*), Pelagic Cormorants (*Phalacrocorax pelagicus*), Slaty-backed Gulls (*Larus schistisagus*), Peregrine Falcons (*Falco peregrinus*), and two pairs of Steller's Sea-Eagles (*Haliaeetus pelagicus*) nest on the cliffs. Tufted and Horned puffins (*Fratercula cirrhata* and *F. corniculata*), Spectacled Guillemots (*Cepphus carbo*), Ancient Murrelets (*Synthliboramphus antiquum*), and approximately a million Crested Auklets (*Aethia cristatella*) (but almost no Least Auklets *A. pusilla*) breed in the talus.

The Kondratyevs have maintained a field station on the island since 1988. The permanent crew in 1994 consisted of Sasha and Luba Kondratyev, Julie Edlund, a volunteer from Massachusetts who was sent by Scott Hatch of the National Biological Survey, and technicians Alexei Ilychev and Mikhail Kondratyev. Sasha Kitaiski visited at the end of the summer to conduct metabolic studies on alcid chicks as part of his Ph.D. work at the University of California at Irvine. The station is on a small grassy bench just above sea level at the north end of the island. Small cabins made of planks and tar paper provided comfortable private sleeping quarters. We cooked, ate, and did laboratory work in three prefabricated buildings, which also provided storage. Meals were cooked cooperatively; most camp chores were done by Mikhail and Alexei. Once a week the banya (sauna) was heated up so that people could bask and wash themselves, hair, and clothes. Water came from two ponds. It had to be boiled before drinking, but this seemed normal, since city water also must be boiled in Russia. Most food was simple camp fare made from dried and canned goods. However, Mikhail and Alexei took a gill-net to the mainland 8 km away and caught pink salmon, and Luba sometimes prepared pirogi, delicious deep-fried pies.

My three separate visits in early July,

late July, and mid-August gave a good perspective on the passage of the breeding season, and I was able to watch or assist in the monitoring of most species. Kittiwakes had fairly poor success in 1994, although some chicks were close to fledging in mid-August. Work on reproductive success was still underway when I left. Talan Island is a superb place for research on seabirds; study plots can be established for almost all species within half an hour's easy walk of camp. And the surroundings are incomparable—the sea on every side, wild flowers underfoot; Steller's Sea-Eagles soaring among thousands of kittiwakes below one's observation point; the Crested Auklets' morning cacophony and evening aerobatics; Ancient Murrelet chicks blundering past the cabin during the night like black-and-white lemmings (except that the sea is their salvation). Admittedly, my memories of Talan Island are colored by the excellent weather while I was there, mostly warm sun instead of the commonplace fog, rain, and gales.

From 9 to 20 July, Sasha and I surveyed seabirds in Zaliv Shelikova (Gulf of Shelikov; also known as Gizhinskaya Guba), at the northern end of the Sea of Okhotsk. This area had never been visited by ornithologists, and only anecdotal data existed on seabird populations. We were joined by raptor biologist Eugene Potapov. Our ship was a small government freighter that was taking supplies to remote light-houses and meteorological stations. We were somewhat constrained by the route and schedule of the freighter, but we were able to disembark with our 4-meter Avon raft to survey the coast at a number of places.

The coast of the Zaliv Shelikova is lined with rolling mountains and intermittent cliffs. There is forest (primarily larch and birch) in the southern lowlands, but most slopes were tundra-covered. We recorded over 300,000 seabirds. Most were small colonies of Slaty-backed Gulls, Pelagic Cormorants, and Spectacled Guillemots on minor headlands along the coast. At the northern end of Zaliv Shelikova, however, we encountered two large colonies of murres and kittiwakes. Tens of thousands of birds were crowded onto the sloping rocks and ledges of small islands and the nearby mainland cliffs. We were thrilled at the opportunity to record colonies of this magnitude for the first time (even though

we had to count them in persistent rain and wind.) In North America the era is past when one expects to discover major concentrations of seabirds that have never been seen by biologists. The raptor nests that we found also constituted range extensions for those species in the Okhotsk Sea. It was not possible to survey the Penzhinskaya Guba, the northernmost tip of the Okhotsk Sea, during our cruise. Hopefully this area can be visited in the near future.

After the cruise we returned to Talan Island, with a brief excursion to Magadan to meet my husband Jim Johnston and bring him to the island. We visited one other area in early August, a commercial fishing camp on the coast near Talan Island. This area is densely forested; in fact, it was the site of a Gulag forestry camp during Stalin's era. Jim conferred with his fellow commercial fishermen. I spent the time on the shore, since the shorebird migration was in full progress. Among the new species I saw were Long-toed Stint (*Calidris subminuta*)

(half an hour of stalking allowed me to see the bird's toes at close range), Wood Sandpiper (*Tringa glareola*), and Little Ringed Plover (*Charadrius dubius*).

We returned to the United States on 13 August. This was my birthday, which as it turned out entitled me to several birthday parties during my last week in Russia. The Kondratyevs produced a cake and the gift of a china cat on Talan Island, which was not only a delightful gesture, but an amazing achievement, given the materials at hand after 2 months on a remote island. Back in Magadan, a close friend whom I met on the cruise made another special meal and gave me an amber necklace. My friendships in Russia, and the beautiful and remote areas where we worked, both make me hope to return.

A word should be added about the state of ecological science in Russia. Government support for science is dwindling rapidly. Biological field work is possible now only for scientists who can get funding

from the West. Some biologists studying seabirds and other marine species have been forced to give up their careers during the last year because their jobs were eliminated, or because their salaries were too low to support their families. The scientists who remain are extremely apprehensive about their future. Not only their careers, but the entire fields of ecology and conservation in Russia, are at risk. In addition, seabirds and marine mammals themselves are threatened by expanding development, such as overfishing and oil exploration. It is to be hoped that the seabird populations of the Sea of Okhotsk can be fully described before uncontrolled development begins to affect them—and that governments and corporations can somehow be persuaded to include modest measures for the protection of seabirds in their plans. Unfortunately, Russian scientists are very pessimistic about the future of their marine ecosystems.

1995 Annual Meeting to be held in San Diego

The 22nd Annual Meeting of the Pacific Seabird Group will be held in San Diego, California on January 10-13, 1995. The meeting will include general papers and a symposium on Island Restoration and Seabird Enhancement.

Symposium papers are invited for the following topics:

- Population Assessment
- Predator Control
- Vegetation Management
- Legal Perspectives
- Resource Protection/Oil Spill Prevention Planning
- Oiled Bird Cleanup/Cost Effectiveness
- Habitat Rehabilitation
- Recolonization/Attraction Studies
- Genetic Studies
- Captive Breeding

This symposium will address methods and strategies for restoring/reviving threatened seabird populations throughout the world, especially in Mexico, Alaska, Japan, and New Zealand. Speakers will be invited to attend from these regions. If PSG receives a grant from the United States Fish and Wildlife Service to host twenty-five Mexican professionals and students, we will attempt to make training monies available to a few invited participants recognized as experts in their fields of "restoration."

The meeting will be held at the Catamaran Resort Hotel situated on Mission Bay in north San Diego. The beach is one block away and rooms have beach or bay views. Discount room rates were negotiated for the period of 9-13 January, 1995. Rates are \$89 per night for a single, \$99 for a double, and \$15 per extra person. Almost half of the rooms come equipped with a kitchenette. Food is available at the hotel and other inexpensive eateries in the immediate vicinity.

Airfare to San Diego is relatively inexpensive—add the delicious and inexpensive South of the Border cuisine and you have a working vacation that features ocean, sun, and balmy weather.

Field trips to the Anza Borrego Desert, the Salton Sea, and the Coronados Islands will make this a memorable PSG meeting. A complete announcement and call for papers was mailed in late summer. For more details about the program, contact the program chair, Mark Rauzon, (Phone: 510-531-3887; e-mail: mjrauz@aol.com). For information concerning logistics or volunteering, contact William Everett, chair of the local committee, (Phone: 619-589-0480; e-mail: wteverett@aol.com).



Pacific Seabird Group goes to Japan: Part 3 (continuing efforts)

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(This third and last part of a three-part article is continued from PSG Bulletin 20(2): 14-17 [Part 1] and PS 21(1): 17-21, 25 [Part 2]).

On 29 April 1993, after returning from the Izu Islands (where we visited a Japanese Murrelet, *Synthliboramphus wumizusume*, colony at Tadanae Island), we had a meeting with Dr. H. Higuchi (then Research Director of the Wild Bird Society of Japan [WBSJ]) and several officials from the Japan Environment Agency. We started with a presentation of a packet of PSG materials (letters of introduction, PSG Bulletins, PSG symposia, etc.), followed by Marbled Murrelet (the PSG wine). The WBSJ and PSG then indicated their joint interest in promoting the need for research and conservation of the rare Japanese Murrelet and other seabirds in Japan, especially the Long-Billed (=Asiatic Marbled) Murrelet (*Brachyramphus perdix*) which may nest in small numbers in Hokkaido. We mentioned our plan to form a team of Japanese and North American PSG biologists to address the many research needs of the Japanese Murrelet in different parts of Japan. Environment Agency officials thanked us for our efforts and also indicated their concern for seabirds which they had been little aware were facing problems. In addition, they provided some recent literature and government documents about the official status of the Japanese Murrelet. Dr. Higuchi was an invaluable translator on many planes.

The next day I returned to California. Leah returned to Hawaii a day later. We both became immediately swamped with our other studies. Soon Japanese Murrelets seemed far away. But the seed had been planted.

In July, Jason Minton of the WBSJ

travelled to Hokkaido and conducted the first inland surveys for the Long-billed Murrelet in Hokkaido, near where an adult had been discovered on the forest floor in 1961 at Mt. Mokoto. Dr. Higuchi had earlier requested information on murrelet surveys, a copy of the PSG protocol, and a tape of Marbled Murrelet vocalizations that were provided courtesy of Kim Nelson. No birds were heard or seen during two days of surveys. Jason wondered whether they nested in trees or on the ground in Hokkaido.

We sent letters to Japanese biologists to inform them of our trip to Japan, to indicate PSG's interest in forming a team to study and protect the Japanese Murrelet, and to invite researchers to attend the PSG meeting in Sacramento in January 1994. The first to respond was Koji Ono. Ono is a Ph.D. student at Toho University and is studying Japanese Murrelets for his thesis research under the direction of Dr. H. Hasegawa. While Hasegawa is more well-known for his work on the endangered Short-tailed Albatross (*Diomedea albatrus*) at Tori Island, he also has had an interest in Japanese Murrelets for many years. Ono has worked with Hasegawa for several years including several trips to murrelet colonies in the Izu Islands. In 1992, he began his doctoral research at Kojine Reef, in the southern Izu Islands. In 1993, he switched his study site to Biro Island, off the east side of Kyushu, after hearing about the site from Yutaka Nakamura. Nakamura lives in Miyazaki, near Biro Island, and had been studying murrelets at Biro Island for years in a low level fashion. Ono and Nakamura had teamed up for extensive research at Biro Island, wanted to work with PSG, and planned to attend the PSG meeting! In particular, they would present a paper on the status of the Japanese Murrelet in the

Rare Alcid symposium being planned by John Piatt.

Over the summer and fall, a PSG team that would visit Japan in 1994 to conduct cooperative research coalesced from many different directions. I was already hooked. John Piatt had long envisioned work in Japan and would somehow make it. Leigh Ochikubo had visited Japan several years before, had conducted seabird research in California for several years, was completing her undergraduate degree at the University of California (Davis), and was considering possible future graduate research. John Fries had lived in Japan for 5 years, spoke fluent Japanese, had begun a Master's degree program in Ecology (also at U.C. Davis), and was searching for a research project in Japan related to conservation. Unfortunately, Leah would not be able to join us in 1994 due to financial constraints.

In October 1993, Ono held a special symposium on the Japanese Murrelet at a meeting of the Japan Ornithological Society in Tokyo. He brought several Japanese researchers together to discuss research and conservation activities in many areas. He printed up a summary of the proceedings and passed them along to us. Fries translated the proceedings, making their results and the status of the species known to us, finally.

Ono and Nakamura came to the 1994 PSG meeting in Sacramento, as scheduled. They contributed significantly to the Rare Alcid symposium and showed some amazing video footage of murrelets at Biro Island. We were honored to have these pioneering researchers at the meeting, as well as their fellow countryman, Dr. Y. Watanuki. We had met Watanuki at the WBSJ office in April 1993 and told him about the upcoming PSG meeting. He has conducted research in Antarctica and has begun a research program in Hokkaido. Since then he had had contact with other PSG biologists, especially Bill Sydeman, and decided to attend. He has now become the PSG representative for the Seabird Monitoring Committee. Prior to this meeting, only one Japanese researcher had ever been to a PSG meeting and that was some time ago: Dr. Haruo Ogi. Clearly, PSG's interest in Japanese issues has become more evident and has gone beyond seabird mortality in Japanese gill nets in the North Pacific (one of Ogi's interests). We welcome further attendance by Japanese re-

searchers and government officials at PSG meetings and involvement in PSG activities around the Pacific. Surely, this invitation applies to all Pacific Rim and other interested individuals but it will often take a special effort to inform other non-English speaking people of the goals of PSG and how we can help seabird research and conservation in other countries and political systems. We can no longer rely solely on PSG participation in other organizations to address international seabird conservation issues in the western Pacific.

By the January 1994 PSG meeting, we had put together an itinerary for our 3-week trip to Japan in March-April 1994 and discussed our plans with our many Japanese cooperators, especially Ono and Nakamura. Our plans included:

- Meeting with Dr. Higuchi and others to continue the formation of our team.

- Visiting Biro Island, the largest Japanese Murrelet colony in the world. We would gain an appreciation for the breeding ecology and nesting habitats at this important colony by examining nests and birds and participating in research being conducted by Ono and Nakamura. Fries would return in mid April to complete cooperative studies of breeding biology for the remainder of the 1994 breeding season.

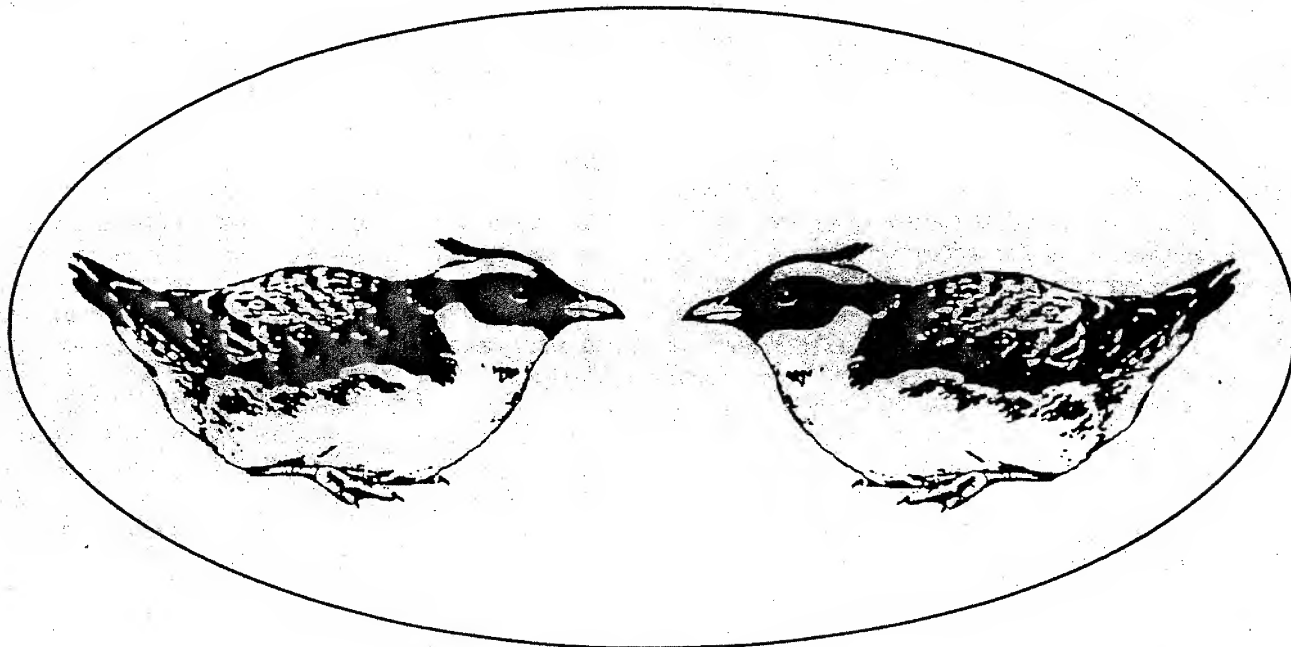
- Visiting the next three largest colonies in the Izu Islands. Here, we would be accompanied on visits to Tadanoe Island and Onbase Reef by Mutsuyuki Ueta (WBSJ) and Dr. M. Hasegawa (Chiba Natu-

ral History Museum), also our companions in 1993. At Sanbondake Reef, we would be joined by Dr. Jack Moyer (Miyakejima Nature Center), long renowned for his efforts to study and protect Japanese Murrelets in the 1950s. On these short visits, we would examine nesting habitats and make a quick survey and assessment of the status of the Japanese Murrelet at each colony. Two colonies (Onbase Reef and Sanbondake Reef) had not been surveyed since Moyer's visits in the 1950s.

This 1994 research was funded completely by the participating individuals and occurred as planned with very interesting results which will be available in an upcoming report. Long-term research is very feasible and desirable at Biro Island where a significant colony occurs. PSG recommended to local government officials (Kadogawa-cho Board of Education) and the Japan Environment Agency that this colony should be protected as a wildlife refuge and that a research station should be built there to facilitate research efforts. The Kadogawa-cho government has already begun a program to educate the public regarding the status, importance, and conservation problems of the Japanese Murrelet. At the Izu Islands, we were able to obtain additional information which indicated that the Japanese Murrelet is declining there. In the past, consumption of eggs and birds may have been a significant problem. The main current terrestrial problem in the Izu (and at Biro Island) appears

to be high predation at nesting colonies by Jungle Crows (*Corvus macrorhynchos*). Large numbers of these crows are attracted to colonies to feed on refuse left behind by large numbers of recreational surf fishermen which use the rocks. Evidence of egg predation (i.e. broken eggshells) was found on all islands. Other predators (i.e., snakes and Peregrine Falcons [*Falco peregrinus*]) also may be affecting small remnant numbers of breeding birds at colonies. Additional mortality probably is occurring in gill nets near colonies during the breeding season as well as far out to sea in the non-breeding season. Japanese biologists (including Dr. H. Higuchi) and PSG further recommended to the Japan Environment Agency that these three colonies should be protected within wildlife refuges at a Tokyo meeting on 15 April 1994. At this meeting, we provided a summary of PSG goals and present and expected future cooperative research in Japan. Japanese and PSG efforts received significant media attention in local and national newspapers and television throughout the spring and summer of 1994. (See the article by Jack Moyer reprinted in this issue of *Pacific Seabirds*).

PSG should continue to assist Japanese efforts for the research and conservation of the Japanese Murrelet. However, it will not be possible to continue efforts without funding. PSG must investigate new mechanisms to carry out this and other important organizational missions.



パシフィックシーバードグループ、日本へ行く
(Pacific Seabird Group, 以下PSG)

第3部

ハリー カーター、リー デフォレスト

(この第3部は、PSG プルテン20(2):14-17 (第1部)、21(1):17-25 (第2部)に続く3部作の最終部である。)

カンムリウミスズメ (*Synthliboramphus wumizusume*) の繁殖地であるタダナエ島のある伊豆諸島から戻り、4月29日、我々は、樋口教授 (元日本野鳥の会研究所所長) と環境庁との会合をもった。先ず、我々がPSG関係書類等一式 (PSG の紹介、PSG 会報、PSG シンポジウム) とPSG 特製の Marbled Murrelet ワインを先方に進呈、そして、希少鳥であるカンムリウミスズメと他の日本の海鳥、特にその中でも北海道に少数が生息するとされている Long-Billed Murrelet (*Brachyramphus perdix*) の生息について日本野鳥の会とPSGが合同調査の用意がある旨を伝えた。又、日本各地でカンムリウミスズメの生息調査をするため、北米のPSG及び日本の生物学者による合同調査チームを結成する予定であることも伝えた。環境庁は、我々の努力に感謝の意を表するとともに、以前はあまり知られていなかった、海鳥が直面している問題に関しての最新情報と政府刊行の書類を提供してくれた。樋口教授にはいろいろな面で素晴らしい通訳をしていただいた。

私は翌日カリフォルニアに、リーは翌々日ハワイ戻ったのだが、帰ってきたとたんに他の諸々の研究のことで手一杯となり、まもなくカンムリウミスズメのことからは遠ざかってしまったように思えてしまった。だが、種は着実にまかれたのである。

その年の7月、日本野鳥の会のジェイソン ミントン氏が北海道に行き、1961年、Long-Billed Murrelet の成鳥の生息が確認された地点である藻琴山の森林地の付近で第1回目の北海道本土の内陸調査を開始した。そのため、樋口教授から、海すずめの各種データ、PSGのアロトコールのコピー、それからギム ネルソンの好意により提供された、まだらうみすずめのヴォーカライゼーションが録音されたテープのリクエストがあった。調査期間の2日間中は、残念ながら鳥の姿を見ることが出来た声もきくこともできなかった。この鳥は木に営巣するといわれているが、地上に営巣する可能性もあるかもしれないと考えられた。

我々は、日本に行ったことと、カンムリウミスズメの研究と保護のためにPSGがチームを結成する用意があること、そして1994年1月にカリフォルニア州サクラメントで開催されるPSG年間大会に日本から研究者を招待したいことを伝える手紙を日本の生物学者に送った。先ず、最初に返事があったのは、小野宏治氏であった。小野氏は、東邦大学の博士号課程在学中で、長谷川教

授の元でカンムリウミスズメの研究をしている大学院生である。長谷川教授は、絶滅に瀕しているあほう鳥 (*Diomedea albatrus*) を島で調査している研究者の第一人者であるが、カンムリウミスズメに関しても長年にわたって携わってきている。小野氏はカンムリウミスズメの繁殖地のある伊豆諸島へも何度か足を運んでいて、長谷川教授と共に数年間にわたってカンムリウミスズメの調査研究をしていた。1992年、小野氏は博士号のための調査研究を南伊豆の小池浜で始めたが、翌年1993年、九州東部にある批郎島の話を中村豊氏から聞き、調査場所を小池浜から批郎島へ移した。中村氏の住んでいるところでは宮崎で、批郎島にも近く、中村氏は数年前にわたってカンムリウミスズメの予備調査をしていたので、小野氏と中村氏は協力して批郎島におけるものと広範にわたるカンムリウミスズメの調査を開始することにし、又、そのことでPSGの協力も得ることにした。そして、きたるPSGの年間大会に参加する計画もたてたのである。大会中のジョン バイエット氏が開催する希少なみずすめ類に関するシンポジウムでは、特別にカンムリウミスズメの実態を報告してもらうこととなった。

その年の夏と秋が過ぎて、カンムリウミスズメの共同調査を行うための94年に渡日するPSGのチームメンバーは、多方面からの多彩な顔ぶれとなった。私はいうまでもない。ジョン バイエット氏は長年日本における調査を夢みていた人であり、どうにか参加することができそうであった。リー オナホポ女史は数年前に日本を訪れたことがあり、現在はカリフォルニアで数年にわたって海鳥の調査に携わってきている。彼女は、ちょうど、カリフォルニア大学デイビス校を卒業したばかりで、大学院に行つて調査研究を続けるかどうか思案中である。ジョン フリーズ氏は5年間日本に滞在したことがあり、流暢な日本語を操る。同じくカリフォルニア大学デイビス校のエコロジ一学部在籍中の大学院生で、日本におけるエコロジーの調査研究課題を模索中であった。あいにく、リーは経済的な理由から94年の調査には加われないこととなった。

1993年10月、小野氏は東京で開かれた日本鳥学会1993年度大会の中で、カンムリウミスズメに関する特別集会を行った。日本の研究者を一同に集め、日本の各地で行われているカンムリウミスズメの現状、保護活動について意見、情報の交換を行ったのだ。小野氏が集会の要旨集を我々PSGに送付してくれたので、それをフリーズ氏が英語に翻訳した。そして、集会の成果とカンムリウミスズメの実態がやっと我々の知るところとなったのである。

小野氏と中村氏はサクラメントで開かれた94年PSG年間大会に予定通り参加した。希少うみすめ類に関するシンポジウムでは、二人は、批郎島で撮影されたカンムリウミスズメの目を見張るようなビデオを紹介するなど、素晴らしい成果をあげてくれた。この二人の先駆的研究者が大会に参加してくれたことは、本場に特筆すべき名誉あることである。同じく日本からの参加者、綿貫氏も同様で、彼には1993年4月、日本野鳥の会のオファイスで会ったときPSG大会のことを伝えたことがある。綿貫氏は南極で調査研究をしており、ちょうど、北海道でも調査活動を始めたところであった。そのことで、彼はPSGの他の生物学者、中でもビル サイドマン氏と懇親にしていたこともあ

て、今回の大会に出席することとなった。綿貫氏は現在、Seabird Monitoring Committee のPSGの代表を務めている。以前この大会に日本から参加した人は小城泰雄氏だった一人で、それも随分前のことである。北太平洋における刺し網漁による海鳥の混獲という問題以上にPSGが日本によせる関心は明らかに高くなっている。(このことは小城氏の関心事の一つでもあった)。我々PSGは、日本の研究者や政府の人達がこれからもPSG大会に参加してくれること、そして、PSGの太平洋における活動に積極的に参加してくれることを歓迎したい。もちろん、このことは、日本だけに限らず太平洋沿岸諸国と他の地域における全ての関係者にいえることである。が、英語を母国語としない人はPSGのゴール、そして、いかにPSGが外国で、しかもそれぞれの国の異なる政治制度の中で海鳥の保護と調査研究を手助けしていくかをわかってもらうには、なみなみな努力が必要になるであろう。海鳥の西太平洋における国際的な保護を訴えるためには、PSGが外国の団体に参加するばかりだけではいけなくなってきたのである。

1994年1月のPSG大会が始まる前に、1994年3月から4月にかけての日本での3週間にわたる調査旅行の日程をまとめた。多くの日本からの協力者、中でも小野氏と中村氏とは連絡を密にとり計画を練り上げた。

我々の計画は――

- ・チーム結成にむけて、樋口教授等と話し合いをもつ。
- ・世界中で最も大きいカンムリウミスズメの繁殖地、札幌島を視察する。
- ・小野氏と中村氏の調査研究に参加、鳥と巣を観察することにより、この貴重な繁殖地における巣の状況、及び繁殖生態についての評価を得る。フリーズ氏はこの後4月半ばは島に戻り、繁殖シーズンを終るまでひき続き繁殖生態の共同調査をする。

- ・札幌島の次に大きいとされる伊豆諸島の繁殖地(3ヶ所)を視察する。
- ・タダナエ島と恩賜島には、昨年(1993年)と同様、植田氏(日本野鳥の会)と長谷川氏(千葉県立博物館)に同行していただく。三本岳では、ジャックモイヤー氏と合流の予定。彼は、1950年代にカンムリウミスズメの研究、保護活動を行ったことで有名である。短期間の訪問ではあるが、巣の状況を調査し、それぞれの繁殖地におけるカンムリウミスズメの生態の簡単な調査を行う。恩賜島と三本岳の2ヶ所は、1950年代にモイヤー氏が調査して以来、何の調査の手も入っていない。

この1994年の調査旅行にかかった費用は、完全に個人のポケットマネーでまかなわれた。旅行は計画通り順調に進み、非常に興味深い結果を得ることができた。それについては近々、報告書にまとめられる予定である。最大の繁殖地、札幌島における最短期間の調査研究は是非とも必要であり、それを可能にすることも充分できるのだ。PSGは、地元の役所(門川町教育委員会)と環境庁に、この繁殖地が野生保護区として守られるべきであり、調査をよりやり易くするため、調査小屋の設置が必要であるということとを提案した。既に、門川町では、カンムリウミスズメの生態、重要性、直面している問題点等を地元の人々に広くわかってもらうよう役所が広報活動に力を入れている。伊豆諸島においてはカンムリウミスズメの数が減少しているということを示すデータを得ることができた。カンムリウミスズメの人間に

よる捕獲と採卵が昔は大きな問題であった可能性があるが、現在、伊豆諸島では(札幌島でも同じく)、陸上においてカンムリウミスズメの生息を脅かす大きな問題となっているのが、ハシブトガラス(Corvus macrorhynchos)により巣が荒らされることである。岩場で磯釣を楽しむ人達が残していった残飯を目当てにたくされて壊れた卵殻がみつかっており、卵が覆われているのは明白である。他に、カンムリウミスズメの生息を脅かしているのは明白で、ハヤブサ(Falco peregrinus)といった捕食者が挙げられる。又、カンムリウミスズメの死因として他に考えられるのが、刺し網漁である。これは、カンムリウミスズメの繁殖期には、島の近くで、それ以外の時期は沖合いで行われるものである。日本の研究者(樋口教授を含む)とPSGは、4月15日東京で行われた環境庁との会合の際に、この3ヶ所の地域を野生保護区として認めるよう意見を提出した。又、この会合で、我々は、PSGのゴール、そして現在、及びこれから先にむけての日米合同調査の要旨を環境庁に提示した。我々PSGと日本の研究者の努力のかけがえがなくて、94年春から夏にかけて、カンムリウミスズメのことが地元、及び全国の新聞、テレビ等マスコミにとりあげられ、注目を浴びた。(新聞切抜きを参照のこと)(この号にあるジャックモイヤー氏の記事も参照のこと)

PSGは、カンムリウミスズメの生態調査に関して、ひき続き日本を支援するべきである。だが、資金なしにはそれも不可能である。PSGは、そのことを実現するためにも、又、PSGの組織としての他の重要な使命を遂行するためにも、新しいメカニズムを研究開発しなければならないと思う。

新聞記事の見出し

- 1) タリデイリー 1994年4月2日付
「カンムリウミスズメ生息のピロウ島、米国から視察グループ」
- 2) タリデイリー 1994年4月15日付
「カンムリウミスズメ保護を訴え米国研究グループが役場訪問」
- 3) 日本経済新聞 1994年4月16日付
「カンムリウミスズメ三宅島沖などに生息」

モイヤー氏の文庫(1994)

野鳥(日本野鳥の会発行の月刊誌) 1994年8月号:27
ジャック・T.モイヤー(1994)「ふたたびカンムリウミスズメ」

Japanese translation by Mariko Fries,
510 Lake Blvd. #254, Davis, CA 95616

Japanese Murrelet Revisited

Dr. Jack T. Moyer, Special Advisor and Ecologist, Miyake Nature Center, Akakokko Station, 4118 Tsubota, Miyake-Mura, Miyake-Jima, Tokyo 100-12, Japan

On an average day, one does not expect to experience the emotions of Urashimataro or Rip Van Winkle. But, April 11th, 1994 was not an average day. I was to travel with Miyake-jima's Akakokko-kanrangers, Yutaka Kobayashi and Yutaka Yamamoto, by fishing boat from Miyake-jima to Kozu-jima to meet a group of seabird scientists [PSG biologists Harry Carter, Leigh Ochikubo, and John Fries] who had come all the way from North America solely for the purpose of studying Kanmuri-umisuzume [Japanese Murrelet] in its natural habitat. I would return to the uninhabited island of Tadanae, off of Kozu-shima, for the first time in 36 years and then stop off at Onoharajima (Sanbondake), an isolated reef well known as a breeding site of Kanmuri-umisuzume, to search for nests of the rare, endemic seabird before returning to Miyake-jima.

Way back in 1958, I had visited each and every mujin-to [uninhabited island or reef] in the Izu Islands, from Udone-jima to Koji-ne at Hachijo-Koshima, in search of Kanmuri-umisuzume, and in the process I had discovered previously unreported nesting colonies of Umineko [Black-tailed Gull] at Tadanae and Koji-ne; of Kanmuri-umisuzume at Onbase, near Kozu-jima; and of Oosuton-umitsubame [Sooty Storm-Petrel] at Tadanae and Onbase. Shortly after my seabird expedition, I plunged full time into a life of research and conservation of coral reefs and coral reef fishes. Although I never lost interest in birds, my research did not permit time to visit seabird colonies, and I completely lost track of Kanmuri-

umisuzume and the ecological changes that were affecting its life.

Now, as a member of the staff at the new Miyake-jima Shizen Center, Akakokko Kan, my assignment again includes seabirds, and on April 11, as we approached Tadanae, memories of the ancient past flooded my mind. It was truly and Urashimataro/Rip Van Winkle situation.

Harry Carter, of the North American group, had brought copies of letters I had written 36 years ago to the University of Michigan Natural History Museum, describing in detail my experiences while discovering 29 nests of Kanmuri-umisuzume in only one and a half hours at Onbase. Using information in my ancient letters, the American group was able to locate only nine nests, thus proving that Kanmuri-umisuzume is still nesting on Onbase, but apparently in significantly fewer numbers.

Returning to Miyake-jima by way of Sanbondake, our group found a similar situation. Whereas I had reported 20 nests and 29 eggs in April, 1957 at Sanbondake, we were now able to locate only 9 nests with 11 eggs. Unquestionably, the population has dropped significantly at both locations in the past 36 years.

Drift net fishing in the North Pacific Ocean in the 1980s certainly took hun-

dreds of Kanmuri-umisuzume. It was only in the late 1980s that scientists became aware of the presence of Kanmuri-umisuzume in drift nets, but many had probably been previously confused with the closely related Umisuzume [Ancient Murrelet].

Perhaps a more serious threat is crows at the nesting sites. Attracted to abandoned lunch scraps and fish bait left behind by sports fishermen, crows are now abundant at all mujinto from Hokkaido to Kyushu. During periods of rough weather in April and May, crows feed on the eggs of Kanmuri-umisuzume. I had witnessed such predation in 1957, when crows were rare at such sites.

My experiences on April 11, 1994 have convinced me to return to my long-abandoned studies on Kanmuri-umisuzume. In the coming year, I hope to begin research on population densities of the bird in the Izu Islands and try to collect convincing data on the causes of its decline. In the meantime, bird watchers can easily observe Kanmuri-umisuzume in April and May at a rich feeding ground off of the southwest coast of Miyake-jima that I first discovered and reported in 1953.

Moyer, J. 1994. Japanese Murrelet Revisited. *Wild Bird*: 27. (English translation by Jack Moyer. *Wild Bird* is a monthly publication of the Wild Bird Society of Japan.)



Conservation News

Feral Cat Protection

Ron Jurek

Conservation Editor's note: feral cats are a serious problem for seabirds on many colonies, including Christmas Island (Pacific) and Ascension Island.

Animal rights organizations and some humane groups are intensively promoting programs to humanely manage and protect local populations of feral cats. Hundreds of local cat-care organizations are promoting and establishing managed "feral cat colonies" across the U.S. for feral cat population control and protection. The international movement started in Europe in the late 1970s, and the crusade in the U.S. has been escalating in recent years. Recently in Virginia, the national animal rights group "Alley Cat Allies" brought suit against National Park Service to stop them from removing feral cats from a National Parkway.

The cat management method is often referred to as "TTVAR" (Trap, Test for disease, Vaccinate, Alter, and Return). It is also called "controlled colony" or "neuter and return". Some of the feral cats trapped can be tamed and adopted, and others must be euthanized because of disease or injury. Most, however, are sterilized and vaccinated, and are returned to the capture site and routinely fed.

Care-givers typically manage for perpetuation of a certain number of cats at the site, but when challenged, the groups claim that colony management is being done to humanely eliminate the feral cat population through attrition. Groups will sometimes relocate a colony to a farm or other rural setting, where cooperators manage the cats in an environment deemed safer for cats than the original site. Some relocation areas, called feral cat sanctuaries, are private wildland parcels with scores of free-living, rescued feral cats that are managed under TTVAR.

According to proponents, the colony becomes territorial, keeping away unsterilized cats, helping to alleviate cat

overpopulation. Because, they claim, the cats are well-fed and healthy, they are not a serious threat to wildlife (except harmful rodents). Typically, supporters argue that feral cats serve a useful purpose in the ecosystem. They claim, too, that this method has been proven conclusively to be more effective, less costly, and more humane than traditional eradication methods. The "no-kill" method is touted as a humane alternative to trap-and-remove programs and to euthanasia by animal shelters.

The evidence for success of this method is primarily anecdotal and many of the claims are clearly unfounded. Yet these groups have been extremely successful in convincing local administrators of parks, hospitals, campuses, etc., to accept the strategy. In California hundreds of colonies have been established in recent years by dozens of cat-care groups (e.g., Happy Trails, Streetcat Rescue, Forgotten Felines, Stanford Feral Cat Network, San Diego Cat Coalition). Many colonies have been in wildlife habitats, such as county and state parks, riparian areas, coastal wetlands, and nesting areas of vulnerable endangered birds. City and county authorities have been persuaded to adopt, or are considering, ordinances identifying cat colony management as an appropriate use of open space (e.g., Golden Gate Park).

Feral cat colonies and cat feeding stations pose threats to local wildlife in city and county parks, urban-fringe wildlife sanctuaries, and other wildlife habitats. For more information about this international crusade for feral cat protection, please contact Ron Jurek, Bird and Mammal Conservation Program, California Department of Fish and Game, 1416 Ninth Street, Sacramento, California 95814; (916) 654-4267.

Changes in Administration of Endangered Species Act

Craig S. Harrison

The Clinton administration announced the following policy directives regarding the implementation of the Endangered Species Act (ESA) in the Federal Register (July 1, 1994). The policies affect the U.S. Fish & Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS). Interior Secretary Bruce Babbitt stated that these policies preclude any need to amend the ESA.

1. Ensure that ESA decisions are based on sound science. NMFS and FWS now require the use of independent scientific peer review in the listing and recovery planning processes to insure the best scientific information available. The agencies have standards for scientific information used in making ESA decisions, and for review and evaluation of that information.

2. Expedite completion of recovery plans and minimize social and economic impacts that may result from implementation. Recovery plans will minimize any social or economic impacts and will be completed within 30 months of the date of listing. NMFS and FWS will involve affected groups with more opportunities to participate in recovery plan development and implementation. Recovery teams will include more state agencies, private individuals and organizations, commercial enterprises and other parties that are affected.

3. Provide greater predictability concerning effects of listings on proposed or ongoing activities. FWS and NMFS will identify, to the extent known, specific activities that are exempt from or that will not be affected by the prohibitions of the ESA concerning "take" of listed species. A single point of contact in each region will assist the public in determining whether a particular activity would be prohibited under the ESA.

4. Avoid crisis management through cooperative approaches that focus on groups of species dependent on the same ecosystem. FWS and NMFS will emphasize cooperative approaches to conservation of groups listed and candidate species that are dependent on common ecosystems. Group listing decisions will be made where possible and recovery plans will be developed and implemented for areas where multiple listed and candidate species occur. Federal, state and private efforts in cooperative multi-species effort under the ESA should be integrated.

5. Increase participation of state agencies in ESA activities. FWS and NMFS recognize the ESA requires cooperation with states. The federal agencies recognize that state fish and wildlife agencies:

- Possess primary authority and responsibility for protection and management of fish, wildlife and plants and their habitats, unless preempted by federal authority;
- Possess scientific data and expertise

on the status and distribution of species;

- Are essential to achieving the goals of the ESA, FWS and NMFS will use state expertise and information in pre-listing, listing, consultation, recovery and conservation planning. FWS and NMFS will encourage the participation of state agencies in the development and implementation of recovery plans.

These new policies may soon be used by the Pacific Seabird Group, since PSG will likely file a petition to list the Xantus' Murrelet as threatened or endangered. Hopefully, PSG will have an important role in working with federal and state agencies in conservation planning and the development of a recovery plan.

Seabird Conservation in the Australian Antarctic Territory

Conservation Editor's note: the following is the summary from Eric J. Woehler's "Antarctic Seabirds: Their Status and Conservation in the AAT," published as a supplement to Wingspan (December 1993).

Ten species of seabird breed in the Australian Antarctic Territory (AAT) [about 42% of Antarctica]. These species are representative of the avifauna of the Antarctic Continent. Breeding populations of Adelie Penguins are increasing at many localities. However, populations of Southern Giant-Petrels have decreased at three of the four Antarctic Breeding localities and the decrease is at least partly attributable to disturbance associated with visits by station personnel. Recent data indicate Adelie Penguins may also be susceptible to disturbance from visitors. The population data for other species of seabirds are insufficient to indicate long-term population trends.

Accidental entanglement in fisheries' longlines provides a risk to birds at feeding grounds, but the scale of this problem to Antarctic seabirds is presently unknown. No species is currently threatened by the presence of the stations or the activities associated with them in the AAT. The major impact has been the localized loss of suitable nesting habitat for ground-nesting petrels, particularly Wilson's Storm-Petrels and Snow Petrels, by the construction of station buildings and the activities associated with the operation of the stations. Management plans for Australia's stations

exist; these incorporate the necessary management and monitoring protocols for the long-term conservation of the seabirds breeding within the AAT.

NOAA'S Armada Surrounded by Icebergs

The National Oceanic and Atmospheric Administration (NOAA) is having difficulty in selling to Congress its \$1.9 billion plan to refurbish its fleet. The bulk of NOAA's aging 24-vessel fleet was built in the 1960's, including the *Surveyor* (1960), *Townsend Cromwell* (1963), *Discover* (1966) and *Miller Freeman* (1968) that have served as platforms for seabird research in the Pacific. The average age of NOAA's research vessels is now almost 30 years, the typical useful life of a research ship.

A lengthy article in *Science* (July 8, 1994) describes the criticisms of NOAA's fleet replacement and modernization plan, which may be the largest ship building program in the history of oceanography. NOAA's proposal would buy eighteen new ships and convert six others originally built for the Navy. Among the criticisms are NOAA's refusal to consider more cost-effective data-gathering options such as chartering private ships, contracting out research tasks and using aircraft as platforms for research. Given the budget climate in Washington, D.C., it seems unlikely but Congress will approve NOAA's ambitious plans.

According to NOAA, the fleet is experiencing increasing breakdowns and lack sufficient space and facilities to be modern research platforms. The Marine Board of the National Research Council (National Academy of Sciences) reviewed NOAA's plan and concluded in April that it is unrealistic and a waste of taxpayer money. For now, it seems that NOAA must go back to the drawing board.

NSF Funds Biological Inventory in Antarctica

The National Science Foundation has given a major grant to the Oceanites Foundation, which was established by PSG member Ron Naveen. Ron will inventory sites of biological importance, including seabird

colonies, in Antarctica, as part of the U.S. government's implementation of the 1991 Environmental Protocol to the Antarctic Treaty. Ron will be conducting field work from November through January and the results of his efforts will probably be incorporated into BirdLife International's Important Bird Area project.

Senate Fails to Act on Biodiversity Treaty

President Clinton signed the United Nations Framework on Biodiversity in June 1993, a treaty that most nations signed in Rio de Janeiro a year earlier. Under the U.S. Constitution, all treaties must be ratified by a two-thirds vote in the U.S. Senate. The Senate failed to ratify the treaty before it adjourned in early October, although a vote may still be possible in a special session of Congress scheduled for November. It is fairly common for the Senate to refuse to ratify international agreements entered in to by presidents.

Among the concerns expressed by opponents of the treaty are (1) uncertainties of U.S. financial contributions; and (2) vagueness of convention language. For example, a farm organization has questioned whether cattle and wheat may be deemed to be "alien species" under the treaty so that American farmers might be required to pay royalties to the countries where those species originated (*Science* 265:859). A related concern is that the treaty might cause more litigation than all other treaties entered into by the U.S. combined. Those arguing against ratification also state that the treaty misappropriates ecosystems as a regulatory tool and assumes that ecosystems are real. This view calls ecosystems "nothing more than mental constructs" and argues that the concept of ecosystems was formed in the 1930s as a research tool for ecologists and should not be used as a geographic guide for regulating.

Sierra Club's Treasury Declines

According to the San Francisco Examiner, the Sierra Club has lost \$6.8 million during the past four years, and is now \$2.9 million in debt. The Sierra Club has kept afloat by borrowing against its \$10 million endowment, a move that is apparently

against its bylaws. The Sierra Club's annual operating budget is about \$40 million. While details are absent, the Examiner and others are reporting that donations and memberships have sharply dropped for other large environmental organizations in the U.S., including Greenpeace, the Wilderness Society, the National Audubon Society, Natural Resources Defense Council and the National Wildlife Federation.

News from Northern California

The *Apex Houston* oil spill case was recently settled between the United States government, State of California, and Apex Oil Company, among others. A \$6.4 million settlement was reached ending nearly five years of litigation. The oil spill occurred in early 1986, when over 25,000 gallons of oil spilled from the leaking oil tank barge *Apex Houston* as it made its way along the coast from San Francisco Bay to the Long Beach harbor. The spill caused damage to marine life from San Francisco south to the Big Sur area, killing approximately 9,000 seabirds, including Common Murres, Rhinoceros Auklets, and smaller numbers of loons, grebes, cormorants, shorebirds, gulls, Marbled Murrelets, and other alcids. The bulk of the settlement funds (\$5,416,430) will be devoted to two seabird restoration projects: the Marbled Murrelet Habitat Project and the Murre Recolonization Project. The rest of the settlement amount will be directed toward civil penalties and reimbursements for damage assessments and cleanup costs. A Memorandum of Understanding has been signed by the three Trustees, which establishes the Apex Houston Trustee Council. Representatives on the Council include: representative Dan Welsh (USFWS in Sacramento) and alternate Jean Takekawa (SFBNWR); representative Don Lollock (CDFG Oil Spill Prevention and Response office in Sacramento) and alternate Paul Kelly (same office); and representative Ed Ueber (Gulf of the Farallones National Marine Sanctuary, NOAA) and alternate Miles Croom (NOAA in Washington D.C.). The Council has developed a draft plan titled, "Restoration of nearshore breeding seabird colonies on the central California coast." The plan will be published in the Federal Register shortly. Comments on the plan are encouraged.

Salaries of Natural Resource Chief Executive Officers

Organization	Who's in Charge	Salary
National Wildlife Federation	Jay Hair	\$232,640
World Wildlife Fund	Kathryn Fuller	\$185,000
The Nature Conservancy	John Sawhill	\$185,000
National Audubon Society	Peter A. A. Berle	\$178,000
U.S. Department of the Interior	Bruce Babbitt	\$148,400
Natural Resources Defense Council	John Adams	\$145,000
Conservation International	Russel Mittermeir	\$125,000
Environmental Defense Fund	Frederick Krupp	\$125,000
The Wilderness Society	G. Jon Roush	\$120,000
U.S. FWS, Region 7	Vacant	\$115-144,600
TNC, V.P. Asia/Pacific and Hawaii	Kelvin Taketa	\$113,340
U.S. National Park Service	Roger Kennedy	\$108,200
U.S. Fish and Wildlife Service	Mollie Beattie	\$108,200
Defenders of Wildlife	Roger Schlickeisen	\$104,121
Sierra Club Legal Defense Fund	Victor Sher	\$104,000
California Department of Fish and Game	Boyd Gibbons	\$95,052
U.S. FWS, Region 1	Michael Spear	\$92-115,700
Sierra Club	Carl Pope	\$90,000
Washington Fish & Wildlife Department	Robert Turner	\$87,434
Hawaii Dept. Land & Natural Resources	Keith H. Ahue	\$85,302
Alaska Department of Fish and Game	Carl L. Rosier	\$83,844
Oregon Fish and Wildlife Department	Rudolf Rosen	\$83,964
Greenpeace USA	Barbara Dudley	\$64,000

Source: Information concerning private organizations is from *Outside Magazine*, March 1994 and IRS Form 990. Information concerning public officials is from the agency.

PSG acts to restore and protect seabirds in Southern California

PSG has begun an initiative to restore and protect seabirds in Baja California and the Gulf of California. We thank the following patrons and sponsors who have provided \$8,800 to support a symposium and workshop to train Mexican biologists at our San Diego meeting.

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Please send checks payable to the Pacific Seabird Group to Craig Harrison, 4001 North 9th St., #1801, Arlington, VA 22203.

Regional Reports

PSG members are urged to send information on their activities to their regional representatives. Addresses and phone numbers of regional representatives are listed on the back inside cover of each issue of Pacific Seabirds.

Alaska and Russia

University of Alaska, Fairbanks (UAF) graduate student **Brian Lance** and assistant professor **Dan Roby** are in the second year of a study of the relationship of diet to chick development in **Red-legged** and **Black-legged kittiwakes** on St. George Island, Pribilofs. Brian is in the midst of laboratory analyses of the composition of adults, chicks, and chick meals from the two species and plans to complete his thesis by this summer. Graduate student **Alex Prichard** and **Dan** are using **Pigeon Guillemots** nesting in Kachemak Bay as bioindicators of nearshore ecosystem health. Alex recently completed this first field season and biochemical analyses of biomarkers in blood collected from guillemot chicks and adults are underway.

Studies on St. George I. by UAF also include the following. **S. Dean Kildow**, assisted by **Rachel Schindler**, continued field studies of the comparative breeding ecology of **Red-legged** and **Black-legged kittiwakes**. This was the second year of his 3-year field study. **Sharon Loy** assisted by **Will Fehringer**, conducted the second year of her study of the use of fresh water lakes by **Red-legged Kittiwakes** and of **Red-legged Kittiwakes** roosting on the new airstrip on the south side of the island. **Tara Curry** and **Christine Brainard** studied the breeding ecology of **Thick-billed Murres** and the behavioral responses of murres to aircraft traffic near the breeding cliffs. This was the third and final year of fieldwork for this study.

Suzann Speckman (UAF) spent the summer on Oomera Island in the northern Sea of Okhotsk studying the breeding biology of **Spectacled Guillemots** in collaboration with **Alexander Kondratyev**. **Alan Springer** (UAF) continued long-term moni-

toring of seabird diets on the Pribilofs this summer.

George Divoky (UAF) monitored **Black Guillemots** on Cooper Island, where fox predation on eggs reduced productivity for the second time in three years.

Scott Hatch (National Biological Survey, NBS) continued seabird monitoring studies on the Semidi Islands and Middleton Island in the Gulf of Alaska and (with **Alexander Kondratyev**) at two sites in the northern Sea of Okhotsk. He also conducted a pilot study in 1994 of at-sea movements by **Common Murres** using satellite telemetry. **John Piatt** (NBS) and **Tom van Pelt** completed a fourth year (1991-1994) of puffin diet sampling at numerous colonies in the Gulf of Alaska and eastern Aleutian Islands. **Keith Hobson** also joined the puffin cruise and obtained seabird tissues (4th year) for stable isotope studies of seabird feeding ecology. Also on the cruise were **Gus van Vliet**, **Leigh Ochlenko** and **Jay Pitocchelli**. John and Tom also continued studies of **Kittlitz's Murrelet** in Kachemak Bay and both **Kittlitz's** and **Marbled Murrelets** in Glacier Bay National Park.

Personnel with the Alaska Maritime National Wildlife Refuge (USFWS) had a busy summer. **G. Vernon Byrd**, **Jeff Williams**, **Lisa Scharf**, **Joe Meehan**, **Dan Boone**, and **Jim Schneeweiss** conducted a seabird census on Bogoslof I., an active volcano. Numbers of **Black-legged Kittiwake** have increased since a similar survey 20 years ago and several species (**murres** and **puffins**) have nested on the 1992 volcanic dome which is still smoking. Additional information on productivity was collected for 2 species. Seabirds were also counted on Koniugi I. and murres were counted on Kasatochi I. **Greg Thompson**, **Toby Burke**, **Laura Olson**, and **Jeff Wraley** counted nearly 50,000 murres on the cliffs on the colony at Kagamil I.

Joe Meehan, **Jeff Williams**, **Lisa Scharf**, **Lisa Meehan**, and **Manuel Pacheco** conducted dawn counts for **Marbled Murrelets** at Adak I., ran a survey route to add information to an existing population index database, and conducted nest searches for breeding **murrelets**. They also conducted surveys for nesting **Tufted Puffins** to determine density, occupancy rates, and burrow persistence in established plots. Work began on installing a series of artificial burrows at a nearby colony to

eventually evaluate productivity.

Julian Fischer, **Scott Hall**, **Peter Duley**, and **Wendy Cruso** continued a long-term monitoring program of 14 seabird species at Buldir I. They also counted birds on index plots and collected productivity information on **Red-legged** and **Black-legged kittiwakes**; **Thick-billed** and **Common murres**; **Least**, **Crested**, **Parakeet**, and **Whiskered auklets**; **Pelagic Cormorants**, **Glaucous-winged Gulls**; **Fork-tailed** and **Leach's storm-petrels**; **Tufted** and **Horned puffins**. Work continued on a program to evaluate **Red-legged** and **Black-legged kittiwake** survival rates through band-resighting.

Angela Palmer and **Susan Woodward** monitored population and productivity trends of **Black-legged Kittiwakes** and **Common Murres** at Agattu I. **Leslie Slater**, **Barbara Blackie**, and **Jeremy Bahr** conducted a seabird monitoring program for all common breeding species on St. Lazaria Island. Long term monitoring plots were established for burrow nesters and murres. **Leslie Slater** and **Tony DeGange** monitored seabirds, particularly burrow nesters at Forrester, Lowrie, and Petrel islands. **Leslie Slater**, **Vernon Byrd** and others monitored **Black-legged Kittiwake** and murre populations at Gull I. and 60-ft. Rock in Kachemak Bay. **Leslie Slater** and **Gary Montoya** counted kittiwakes and murres at Chisik and Duck island in Cook Inlet as part of a Minerals Management Project to assess potential impacts of issuing new oil leases in the area.

Art Sowls and **Vernon Byrd** counted **Red-legged Kittiwakes** at St. Paul Island, and **Art Sowls** gathered information on kittiwake productivity. **Don** and **Belinda Dragoo** continued the ongoing seabird monitoring program at St. George where annual data are collected on the productivity of **Red-legged** and **Black-legged kittiwakes** and **Common** and **Thick-billed murres**. Both Pribilof crews implemented a program to assess the use of seafood processing outfalls by gulls and other birds. **Art Sowls** continued to oversee a rat prevention project in the Pribilofs. Winter monitoring of seaduck populations, including **Harlequin Ducks** and **eiders**, continued in the Aleutian (**Jeff Williams** and **Joe Meehan**) and Pribilof Islands (**Art Sowls**).

D.G. Roseneau and **A.B. Kettle** completed another successful season collecting population and productivity data on **Com-**

mon Murres in the Barren Islands. The work centered at East Amatuli and Nord islands. The study was funded by the Exxon Valdez Oil Spill Trustee Council as part of their on-going restoration monitoring program in Prince William Sound and the northern Gulf of Alaska. Ed Bailey and assistants removed foxes from Simeonof and Chernabura Islands which makes the refuge-owned Shumagin Islands now fox-free. Working with Ed Bailey, Andrew Durand and Kurt Schmidt surveyed Black Oystercatcher and Pigeon Guillemot populations in the outer Shumagin Islands to assess the response of these species to removal of introduced arctic foxes. This project was funded by the Exxon Valdez restoration program as a way to restore populations of these and other seabirds.

In a cooperative effort between NPS, Migratory Bird Management, Togiak NWR, and Yukon Delta NWR, Lisa Haggblom collected population and productivity data at Cape Peirce, Alaska, 1994, for Black-legged Kittiwakes, Common Murres, and Pelagic Cormorants. Whole colony counts were also conducted by boat, as well as colony documentation from Bethel to Dillingham.

Vivian Mendenhall, Migratory Bird Management (MBM) (USFWS), had the privilege of visiting the Russian Far East. She spent two months in the northern Sea of Okhotsk as a guest of Alexander (Sasha) and Luba Kondratyev of the Institute of Biological Problems of the North, Russian Academy of Sciences, Magadan. They censused seabird colonies in the northern Sea of Okhotsk and found several large, previously unrecorded alcid and kittiwake colonies. Other previously-unsurveyed coastline from northeastern Kamchatka north to the Gulf of Anadyr was censused by Peter Vyatkin and others. These surveys were supported by the USFWS, Russian Academy of Sciences, and a grant from the U.S. Department of State through the U.S. Fish and Wildlife Service.

Vivian Mendenhall and the Kondratyevs are continuing their cooperation on the Beringian Seabird Colony Catalog. Luba Kondratyev worked with Vivian and Shawn Stephensen (USFWS) during February 1994 to learn the database procedures. Published and unpublished colony data for the Russian Far East will be entered in Magadan during the coming year.

Marine contaminants in north and east Russia are being assessed by the Office of Naval Research (radionuclides) and NOAA's National Status and Trends Program (organochlorines and heavy metals). Scott Hatch arranged for collection of intertidal sediment and mussels on Talan Island, in collaboration with Sasha Kondratyev and Vivian Mendenhall.

In the summer of 1994, the Marbled Murrelet oil spill restoration project (K. Kuletz, D. Marks, N. Naslund, MBM, USFWS), joined by Lynn Prestash and Rick Burns of British Columbia, studied the foraging behavior of Marbled Murrelets in Prince William Sound. They radio-tagged and tracked 47 adult Marbled Murrelets over 6 weeks. Five nest areas were found and over 400 resightings were made by air and boat. One of the nests fledged a juvenile, which was radio-tagged and followed over 16 days. They also repeatedly monitored juvenile and adult ratios in two areas to develop a protocol for indexing reproductive success and post-breeding movement.

Bev Agler, Steve Kendall, Pam Seiser, and several other observers (MBM, USFWS) conducted a seabird and sea otter survey of Southeast Alaska. Data were also collected on seabird colonies. John Lindell, (Ecological Services, USFWS) in Juneau, completed a seabird survey of Icy Strait during August. 1994 is the second year of area specific, at-sea waterbird surveys, which compliment the southeast wide seabird surveys initiated by FWS this year.

As part of a MBM, USFWS project funded by the Exxon Valdez Oil Spill Trustee Council, Lindsey Hayes and a crew of five (Mary Cody, Kirk Lenington, John Maniscalco, Bev Short, and Ed Vorisek) studied the breeding and feeding ecology of Pigeon Guillemots at Naked Island and Jackpot Island in Prince William Sound. Bill Ostrand is investigating the role of prey availability in a larger project that is looking into the question: is food limitation impairing the recovery of piscivorous avian species injured by the Exxon Valdez oil spill?

There is also an ongoing study of Glaucous Gull predation on goslings and ducklings on the Yukon Delta, conducted by Tim Bowman, (MBM, USFWS).

In addition to annual waterfowl breeding pair surveys conducted throughout the state by MBM, USFWS, the following on-

going studies focus on sea ducks in Alaska: a Steller's Eider spring migration population survey on the coast of western Alaska, a winter Steller's Eider population survey of Kodiak Island, Spectacled Eider population surveys of staging and wintering areas in the Bering Sea using satellite telemetry data from a study described below, and a Spectacled Eider breeding pair survey of the North Slope, all conducted by Bill Larned, MBM, USFWS; a Steller's Eider breeding pair survey on the North Slope, conducted by Karen Laing, MBM, USFWS; Steller's Eider nesting study at Barrow, conducted by Lori Quakenbush, Ecological Services, USFWS and Robert Suydam, North Slope Borough; Spectacled Eider satellite telemetry study to identify staging and wintering areas, conducted by Margaret Petersen, NBS; a study to evaluate the extent of lead poisoning in Spectacled Eiders on the Yukon Delta, conducted by Margaret Petersen, Chris Franson, and Paul Flint, NBS; Spectacled Eider nesting ecology and adult survival studies on the Yukon Delta, one conducted by Barry Grand, Paul Flint and Margaret Petersen, NBS; and another conducted by Brian McCaffery and Tina Moran, Yukon Delta National Wildlife Refuge; nesting ecology of Spectacled Eiders on the Indigirka Delta, conducted by Dan Esler, John Pearce and Margaret Petersen; Spectacled Eider studies on abundance, movements and production in the central Beaufort Sea area, conducted by Troy Ecological Research Associates; Harlequin Duck summer population surveys conducted by Denny Zwiefelhofer, Kodiak National Wildlife Refuge and by Brian McCaffery, Yukon Delta National Wildlife Refuge; and a study of breeding Harlequin Ducks in Prince William Sound, conducted by Dan Rosenberg, Alaska Department of Fish and Game.

Beringian Seabird Bulletin - The second issue (1994) of the *Beringian Seabird Bulletin* is available now to anyone interested in Alaskan-Russian Far East seabird activities. Please contact Kent Wohl, USFWS, 1011 E. Tudor Road, Anchorage, AK 99503, if you would like a copy.

Dave Irons



Circumpolar Seabird Bulletin

The first issue of the *Circumpolar Seabird Bulletin* was published recently and is available upon request. Please contact **Kent Wohl**, USFWS, 1011 E. Tudor Road, Anchorage, AK 99503, if you would like a copy. The primary purpose of the Bulletin is to improve communication and coordination between scientists, managers, indigenous peoples, and conservationists interested in northern seabirds. The Bulletin is a joint effort between the eight arctic countries signatory to the Declaration on the Protection of the Arctic Environment. The first Bulletin contains contributions by Canada, Finland, Iceland, Norway, and USA. The Bulletin also contains a summary of the first Circumpolar Seabird Working Group meeting which occurred in January 1994.

Circumpolar Seabird Working Group

The Conservation of Arctic Flora and Fauna (CAFF) program is one of four program components of the Arctic Environmental Protection Strategy. The Strategy was adopted by ministerial declaration in 1991 by the eight Arctic countries. CAFF represents a distinct international forum of Arctic scientists, resource managers, indigenous peoples, and conservationists with objectives to share information on Arctic species and habitats, protect the Arctic environment from human threats, and seek development of more effective laws and conservation practices.

During the second CAFF meeting in 1993 the USA presented proposals to create a Circumpolar Seabird Working Group (CSWG) to facilitate, among other things, developing an International Murre Conservation Strategy, a Circumpolar Seabird Colony Catalog, and a Circumpolar Seabird Bulletin. The

CSWG proposal was approved.

The first CSWG meeting occurred in Sacramento just prior to the 1994 PSG meeting. Participants addressed five main topics during the inaugural meeting: overview of seabird resources of the arctic countries, murre conservation strategy, seabird colony catalog databases, circumpolar seabird bulletin, and new seabird initiatives. The new CSWG initiatives for 1994-95 include: circumpolar seabird monitoring network, seabird hunting and harvesting regimes, incidental take of seabirds in commercial fisheries, coordination of seabird banding programs, directory of arctic seabird experts, and guidelines to minimize human disturbance of seabirds at colonies.

The country representatives to the CSWG are listed below:

John Chardine, Canadian Wildlife Service, St. John's, Newfoundland
 Tony Gaston, Canadian Wildlife Service, Hull, Quebec
 Martti Hario, Finnish Game and Fisheries, Helsinki, Finland
 Aevor Petersen, Icelandic Museum of Nat. History, Reykjavik, Iceland
 Peter Nielsen, Dept. of Health and Environment, Nuuk, Greenland
 Vidar Bakken, Norwegian Polar Institute, Oslo, Norway
 Alexander Golovkin, Ministry of Ecol. and Nat. Resources, Moscow, Russia
 Alexander Kondratyev, Biological Problems of the North, Magadan, Russia
 Stanley Sennar, National Audubon Society, Boulder, Colorado
 Kent Wohl, USFWS, Anchorage, Alaska

The second meeting of the CSWG is scheduled for March 1995 in Oslo, Norway.

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Tony Gaston introduced the proceedings by noting that there was much more research and monitoring activity this year in BC relating to marine birds than had been true in the past. This provides an opportunity to improve our understanding of the "big picture" of regional events affecting marine birds through communication and sharing of data among participating researchers. He noted that in the past meetings relating to marine bird research had been dominated by CWS, but with the establishment of the Wildlife Chair at Simon Fraser University this was no longer the case. He encouraged attendees to contribute information to the Pacific Seabird Group monitoring programme, invited comments on the document "Conservation issues and CWS priorities for marine birds" and urged everyone to en-

Canada

Following a fairly extensive round-up on Canadian seabird activities in the last bulletin, this account covers only a meeting of British Columbia seabird researchers,

hosted by the Wildlife Chair at Simon Fraser University and held there on 16 September 1994. Our intention was to improve coordination among the substantial number of research projects now ongoing on marine birds in B.C.

The following were present: **Doug**

hance efforts to combat raccoons in the Queen Charlotte Islands, if they got the opportunity. **Trudy Chatwin** of the B.C. Ministry of Environment and Parks was intending to produce a manual of techniques for censusing and monitoring marine birds and those interested should contact her.

Following this introduction, Tony emphasized the value of integrating information from diverse observations in order to understand the role of phenomena such as El Nino in driving seabird dynamics in British Columbia. He also described the work of the Laskeek Bay Conservation Society in monitoring seabird populations in Hecate Strait, as an example of what could be done by non-professionals.

Fred Cooke gave a broad outline of the programme being pursued by the new Wildlife Chair at Simon Fraser University and emphasized the importance of survival rate studies in understanding population dynamics, especially in the context of recently developed software that allows more flexible analysis of capture-recapture data. The introductory talks were followed by accounts of 1994 fieldwork in several ongoing seabird studies.

Ian Jones described the main seabird initiative being undertaken by the Wildlife Chair; a research station on Triangle Island undertaking population studies of breeding alcids. In 1994 a hut housing up to six researchers was constructed, boardwalks were laid over sensitive areas, and banding and breeding biology studies were initiated, concentrating on **Cassin's Auklet**, **Rhinoceros Auklet** and **Tufted Puffin**. Some observations were also made of **Pigeon Guillemots**, **Common Murres** and **Leach's Storm-Petrels**. Diet studies were carried out for the auklets and puffins. **Moirra Lemon**, of the CWS, repeated surveys of the permanent monitoring plots set up in 1984.

Yolande Morbey described her M.Sc. project on the growth and departure age of **Cassin's Auklet** chicks. She will be testing the Ydenberg model of the "fledging boundary" for nestling alcids, which makes certain predictions about the relationship of growth rates to age at fledging. Field work this year, as part of the Triangle Island study, involved measuring the growth of several hundred chicks and some manipulations of date of hatching. Many chicks developed symptoms described as "shut-eye

disease," in which the eyes gradually closed so that the chicks were eventually sightless. This may have been caused by botulism; tests are in progress. She would be interested to hear of similar observations elsewhere.

Anne Harfenist outlined an ongoing research programme on the demography of **Cassin's Auklet** at Frederick Island. Seven hundred adults were trapped and chick growth was also measured, following the same methods as **Yolande Morbey**. This work will complement studies at Triangle Island and those being conducted by the Laskeek Bay Conservation Society at Reef Island.

Andy Derocher described a project to capture **Marbled Murrelets** at Desolation Sound, which is being carried out in conjunction with **Gary Kaiser** and **Kathy Martin**. This year 176 MAMU were caught in 22 trapping nights and 43 were equipped with radios. One nest was found by radio-tracking in the Mountain Hemlock zone and some information was obtained on foraging patterns.

Gary Kaiser gave a summary of the current rat-eradication project at Langara Island. This summer, brodifacum was used in a pilot project at Lucy Island, just off the main island. Rat behaviour was as predicted, with a period during which the bait was actively taken, followed by a steep decrease in bait use. Few rats were found on the surface; all four radio-collared rats died out of sight. Experiments were conducted to determine the fate of rat corpses. None was taken by eagles, but crows and ravens may be at risk. The shrew population declined by about 90% during the eradication period. Studies on the pathways taken by the poison in the ecosystem are ongoing but generally risk to non-target species appears small. Eradication on the main island is planned for next summer.

Alan Burger described a series of different studies with which he is involved. Regular boat transects on the Vancouver Island shelf are designed to analyse coarse scale variations in seabird abundance. Inshore boat transects in Barclay Sound are intended to provide fine-scale information on the distribution of **Marbled Murrelets** and to determine long-term changes in populations through comparison with data from a decade ago. Observations of inland activity of MAMUs are being made in Carmanah and Walbran valleys to determine habitat preference and long-term variation and to

find nest sites, of which 6 have so far been located. Beached bird surveys, coordinated by Alan, are being carried out at 40 sites in BC and provide information on rates of oiling (10% so far, low by international standards) and on periodic die-offs. He also mentioned ongoing work on diving performance of alcids, mainly conducted in conjunction with students, and the research of **Sharon Dechesne**, who is studying the vocalizations of **Marbled Murrelets**.

Ian Goudie described his current research on sea-ducks, especially **Harlequins**. It has been possible to band large numbers of HADU and resightings indicate that some birds from the US move north to winter in BC waters. He presented a tentative model for Harlequin populations, suggesting that they are capable of sustaining only a very low hunting mortality, probably only a few percent annually.

Ken Morgan described surveys that he is carrying out on ships of opportunity to fill in gaps in our knowledge of offshore distributions. He is also investigating the effects of offshore seamounts in concentrating marine birds. In addition, he is carrying out counts every six weeks in the Straits of Georgia and weekly counts from the Victoria ferry. He is involved in discussions over the establishment of marine National Wildlife Areas in BC, with Swiftsure Bank being currently considered as a candidate.

Terry Sullivan is studying the diet and chick growth of cormorants in the Straits of Georgia, with a view to improving the understanding of analyses for toxic chemicals routinely carried out on these birds. The diet mainly consists of non-commercial fishes, such as sculpins. Big differences were found among colonies in asymptotic chick mass. He also mentioned the ongoing interest of John Elliot and Phil Whitehead in studying toxic chemicals in marine birds and the possibilities for collaboration.

Following the research talks, there was a round-table discussion on ways to improve communication and increase integration among studies, especially where time-trend data was involved. It was suggested that each study select indices appropriate to detect inter-year variation in feeding conditions and contribute the information to an annual compilation, in the form of a report, either in *Pacific Seabirds*, *Bird Trends*, or another similar format. The same

information could be contributed to the P.S.G. Monitoring Programme. Problems of selecting indices, ensuring comparability, and accuracy and possible publication formats, including an electronic bulletin-board were discussed. It was agreed that there would be an annual meeting of the group in (or about) November each year, at which annual indices would be compiled. Methods for dissemination would be reviewed, but initially some kind of hard-copy format would be employed. Fred Cooke offered to have the Wildlife Chair host the meeting. A good time was had by all.

Tony Gaston

Northern California

Paul Kelly and **Dave Jessup** (California Department of Fish and Game) are overseeing a variety of contracts for the Department's Oil Spill Response and Prevention Program. The following individuals or organizations are under contract to CDFG-OSPR to collect baseline information on California marine wildlife resources and develop injury assessment protocols for future oil spills: **Harry Carter** (NBS), **Dan Anderson** (UCD), **Mike Bonnell**, **Ken Briggs**, **Breck Tyler**, and **Dave Lewis** (UCSC); University of California School of Veterinary Medicine; Hobbs Seaworld Inc., and Point Reyes Bird Observatory (for more details see below, under each organization).

Gerry McChesney of California State University, Sacramento is concluding his Master's thesis. His study is on the breeding biology of **Brandt's Cormorants** at San Nicolas Island, California and is part of a joint NBS (California Pacific Science Center)/U.S. Navy (Mugu Naval Air Weapons Station) project.

Dr. Andrew Thompson of Santa Clara University, with support from the Elkhorn Slough Volunteer Program, is studying how sexual selection operates in monogamous birds, using the Plain Titmouse as an example.

Pam Brynes is continuing her Master's thesis through Moss Landing Marine Laboratories (MLML) on egret foraging behavior, correlating habitat use with prey populations.

Jennifer Parkin, MLML, is focusing her thesis on a new Caspian Tern rookery

in the Reserve restored marsh. There were 187 nests, up from 80 nests on the island last year. This increase is attributed in part because Parkin mowed weeds from the nesting area to increase nesting habitat.

Andrew De Vogelaere and **Steven Kimple**, ESNERR, have developed an aerial balloon photography technique to observe the mixed **Great Egret** and **Great Blue Heron** rookery on the Reserve. The rookery has grown from 1 nesting pair of herons to 61 egret pairs in 1993. Extensive nesting use appears to be affecting the Monterey pines; several have fallen or are dying.

Mark Silberstein is working with **Richard Zimmerman** and **Randy Alberti**, Hopkins Marine Station, on a seagrass restoration and biology project in the Elkhorn Slough Reserve.

Deborah Jaques and **Craig Strong** are completing the final report of a two year project assessing disturbance to **Brown Pelicans** at Pt. Mugu Naval Air Weapons station for the Navy in contract with NBS-CPSC. The project also includes aerial and ground surveys of pelican roost sites throughout southern California.

Under **Dan Anderson** (UC Davis), Jaques and Strong are continuing their coastal State Park Marine Bird and Mammal Project. The focus of this project is a resource inventory and description of seabird and mammal habitats in state park units and current management issues.

Jim Harvey and **John Mason** (Moss Landing Marine Laboratory) continue to monitor the monthly distribution and abundance of seabirds in Monterey Bay using strip survey methodology. One fixed transect and two random transects are attempted each month. These data will be compared with previous years and with oceanographic conditions. Accompanying these transects are weekly surveys of three 2-km sections of beach. Beachcast bird number and species will be compared with the data from ocean transects.

Harvey and Mason are also conducting seabird and mammal surveys at the Naval Disposal Site west of the Farallon Islands to determine the effect of dredge disposal on distribution and abundance of birds and mammals in this area.

Student **Jamie Scholten** is examining the nesting ecology, behaviors, and ocean distribution of **cormorants** off Monterey.

National Biological Survey biologists **Harry Carter**, **Darrell Whitworth**, **Leigh**

Ochikubo, **Gerry McChesney**, and **Mark Pierson** (Minerals Management Service) conducted surveys of **Xantus' Murrelets**, **Ashy Storm-petrels**, and certain other species and colonies in the Channel Islands. Several important colonies were discovered using new survey techniques, especially at Anacapa, Santa Cruz, and San Clemente islands. This work was funded by the U. S. Navy (Legacy Resources Management Program) and conducted in cooperation with the Pt. Mugu Naval Air Weapons Station (**Tom Keeney**). Surveys will continue in 1995.

McChesney continued to work with the Point Mugu Naval Air Weapons Station (**Tom Keeney**) to study and monitor seabirds at San Nicolas Island, focusing on **Brandt's Cormorants**. **Deborah Jaques** and **Craig Strong** completed a two-year study of roosting **Brown Pelicans** at Point Mugu as well as surveys throughout the Channel Islands (also see Jaques and Strong report). These projects have been funded by the Point Mugu Naval Air Weapons Station (Environmental Division) and through the Legacy Resource Management Program.

NBS (CPSC) and USFWS (San Francisco Bay National Wildlife Refuge) continued annual surveys for **Common Murres**, **Brandt's Cormorants**, and **Double-crested Cormorants** in 1994. Almost all coastal colonies in northern, central, and southern California were surveyed using aerial photography. In addition, several inland colonies of **White Pelicans**, **Double-crested Cormorants**, and **California Gulls** were surveyed in cooperation with the Point Reyes Bird Observatory (**Dave Shuford**). Funding to date has been provided by the California Department of Fish and Game (Oil Spill Prevention and Response), the U. S. Fish and Wildlife Service, and the U. S. Navy.

Roger Hothem (NBS/Pacific Research Group) is currently summarizing studies on contaminants and reproductive success in **Snowy Egrets** and **Black-crowned Night Herons** in two colonies in San Francisco Bay. **Carolyn Marn** and **Joe Skorupa** continue to investigate reproductive success in many species of waterfowl and shorebirds in the Tulare Basin in agricultural drainwater areas.

Harry Ohlendorf continues to specialize in wildlife toxicology with a special interest in the effects of contaminants on

aquatic birds. Several current projects involve ecological risk assessments at Superfund sites and other locations where contaminants are of concern because of their potential effects on birds (as well as other animals and plants). He is also working on projects related to broader issues of wetlands and environmental enhancement.

Kristin Schmidt and **John Hunter** (Six Rivers National Forest), **C. John Ralph** and **Sherri Miller** (Redwood Sciences Lab-USFS), **Howard Stauffer** (Humboldt State University-Dept. of Mathematics), and **Lynn Roberts** (USFWS-Sacramento Office) have been cooperatively developing a proposal for a study to better define the range and distribution of the **Marbled Murrelet** at far inland sites on federal lands in northern California.

Craig Strong, **Jeff Jacobsen**, **Ron LeValley**, **Brian Smith** and others carried out population and productivity assessment cruises for **Marbled Murrelets** from the Oregon border to Pt. Arena, California, in June and July. In August and early September this crew on productivity assessment cruises near Crescent City and Trinidad, California. By using abdominal body molt and wing molt, we were able to obtain age-ratio data (fledgling/after hatch-year) into September. **Craig Strong**, **Bill McIver**, **Ian Gaffney**, and **Chuck Striplen** carried out productivity assessment and distribution cruises for **Marbled Murrelets** along the length of the Oregon coast in August. **Murrelets** were concentrated near rocky points and headlands this August, in contrast to their predominance off sandy shores earlier in summer (1992, 1993). The proportion of fledglings was generally over 0.05, but we are still awaiting final analysis.

POINT REYES BIRD OBSERVATORY

A. Farallon National Wildlife Refuge and Gulf of the Farallones.

Bill Sydeman, **Peter Pyle**, **David Ainley**, and **Elizabeth McLaren** continue to monitor breeding seabirds and marine mammals at the Farallon Islands. They are continuing demographic and dietary studies on **Western Gulls**, **Brandt's Cormorants**, **Cassin's Auklets**, **Common Murres**, **Pigeon Guillemots**, and **Rhinoceros Auklets** on Farallon NWR. Winter colony attendance by **Common Murres** and **Western Gulls** also is being investigated. Continuing in 1994, **Sydeman**, **Walter Jarman**, **McLaren**, **Pyle**, **Keith**

Hobson, and **Lloyd Kiff** worked to analyze data for studies of contaminant levels, trophic structure, and bioaccumulation of contaminants in marine birds and mammals in the Gulf of the Farallones. **Sydeman** and **Nadav Nur** are developing a spatially explicit population model for **Common Murres** in California with funds from the California Department of Fish and Game Office of Oil Spill Prevention and Response. **Sydeman** and **Tom Schuster** are developing the Oil Spill Response Team for California.

David Ainley, **Larry Spear**, and **Sarah Allen** continue to investigate pelagic distribution of seabirds in relation to prey and other habitat features in central California, using GIS and remote sensing techniques. The study is being conducted in conjunction with the National Marine Sanctuary and National Marine Fisheries Service. They devised a separate report on the **Marbled Murrelet** for the U. S. Forest Service.

Sydeman and **Michelle Hester** are restoring and monitoring the **Rhinoceros Auklet** population on Ano Nuevo Island. **Sydeman** and **Jack Feldman** monitored population size and breeding success of gulls, cormorants, and **Xantus Murrelet** on Santa Barbara Island in 1993 with funding from Channel Islands National Park. *B. Coast and Estuaries.*

Gary Page, **Lynne Stenzel**, **Dave Shuford**, and **Janet Kjelson** continue a shorebird ecology project, coordinating spring, fall, and winter shorebird surveys in coastal and interior wetlands of all states west of the Rocky Mountains. Staff and research associates continue to monitor breeding success and juvenile dispersal of **Snowy Plovers** along Monterey Bay. They are also conducting winter population surveys along the west coast of the United States. **John** and **Ricky Warriner** and **Gary Page** are participating in a project to protect plover nests from mammalian (red fox) predation using predator exclosures (see under USFWS - SFBNWR).

D. Mono Lake.

Christine King and **Dave Shuford** continue studying breeding success and population size of **California Gulls**.

E. Other Regions.

David Ainley, **Larry Spear**, and **Chris Ribic** (University of Wisconsin) continue studies of pelagic seabird communities in the eastern equatorial Pacific. **Ainley** and **Richard Podolsky** (with **Greg Spencer**

and **Leah DeForest**) are investigating population stability and effects of human-induced mortality on **Newell's Shearwaters** and **Dark-rumped Petrels** on Kauai; **Nadav Nur** is helping with development of demographic models of these species.

SANTA CRUZ MTNS. MURRELET GROUP

The **Singers**, working in cooperation with **David Suddjian** and a team of volunteer biologists, continue to investigate new and old **Marbled Murrelet** nest sites and associated flight and vocalization behavior in Big Basin Redwoods State Park. This year, **murrelets** were found nesting in the same nest as was used in 1991.

With the support from the California Department of Fish and Game and San Francisco State University, **Steve Singer** is continuing a project that will locate all areas of remaining old-growth forest in the Santa Cruz Mountains and survey as many as possible for **murrelet** activity. This effort has revealed several new areas being utilized by **murrelets**, including at least one new probable breeding locale.

SAN FRANCISCO BAY BIRD OBSERVATORY

SFBBO continues to monitor colonial nesting birds in south San Francisco Bay, including **Caspian** and **Forster's terns**, **herons**, **egrets**, and **California Gulls**.

USFWS/SAN FRANCISCO BAY NWR

Jean Takekawa participated in aerial seabird surveys throughout central and northern California as part of a coastal California seabird survey (see NBS-CPSC above).

Mike Parker and other Refuge biologists continued to work with PRBO to evaluate the effectiveness of predator exclosures around **Snowy Plover** nests at Salinas River NWR and many other sites along Monterey Bay. Predator management was initiated in early 1994 throughout a large portion of the Monterey Bay area. Work was conducted by USDA - Animal Damage Control and the Refuge. Joint funding was provided by USFWS, State Parks, and County Parks. The program was directed at reducing predation of selected predators, with a primary focus on non-native red foxes. Preliminary results indicate that the program was highly effective. PRBO reports that **Snowy Plover** reproductive success in 1994 was the highest since the monitoring program began in the early 1980s in the Monterey Bay

area. The use of predator exclosures will be evaluated in the coming year. Funding is being sought to continue predator management in 1995.

Mike Parker (USFWS-SFBNWR), and **Harry Carter** and **Gerry McChesney** (NBS-CPSC) conducted a survey for **Ashy Storm-petrels** and other crevice and burrow nesters on the North Farallon Islands. They are preparing a report summarizing this effort.

California Clapper Rail monitoring and studies in San Francisco Bay are continuing. Population increases observed in 1993 were sustained in early 1994. Continued predator management (primarily non-native red fox removal) appears to be a major contributing factor in recent population increases. **Joy Albertson**, Cooperative Education student with the Refuge, is completing her Master's research on factors affecting reproductive success in **California Clapper Rails**, focusing on contaminants and predation.

Stephani Zador and other Refuge biologists, in cooperation with the San Francisco Bay Bird Observatory, are developing a program to use decoys to encourage restoration of colonial nesting bird colonies that were destroyed by red fox predation on the SFBNWR. Decoys will be used to enhance **Caspian Tern** and heron and egret nesting colonies.

As part of a nationwide effort, the SFBNWR Complex is evaluating all secondary uses on refuges within the complex, to assess whether they are compatible with the purposes for which each refuge was established. The impacts of hunting, boating, and trail use on roosting **Brown Pelicans** and other waterbirds and shorebirds are being evaluated at Salinas River NWR. Public input is currently being solicited to be used to develop a public use plan and draft environmental assessment. A similar evaluation will soon be conducted for SFBNWR.

UNIVERSITY OF CALIFORNIA, DAVIS

UC Davis graduate students, working under **Dan Anderson**, are conducting or finishing the following projects relating to seabirds:

Steve Detwiler, behavior and physiology of wetland birds species in habitats contaminated by agricultural chemicals.

Ruth Anne Elbert, population biology and behavior of Western Grebes and

Osprey in contaminant-contrasted habitats in northern California.

Frank Gress, monitoring reproductive success of **Brown Pelicans** in the Southern California Bight. His long term monitoring project on **Brown Pelicans** at Anacapa Island includes food studies and breeding biology investigations. He is monitoring **Brandt's Cormorants** and **Pelagic Cormorants** and is studying the effects of the El Niño on seabirds of Anacapa Island and in the Southern California Bight. Pollutant studies are being written up on **Brown Pelicans** and **Double-crested Cormorants** from 1977-1993. A paper has been submitted with **Dan Anderson** with results from the telemetry study on the effects of oiling on **Brown Pelicans**.

Leopoldo Moreno, ecology of **White Pelicans** in the Klamath Basin: population status, feeding ecology, and habitat/water-use patterns.

Eduardo Palacios, seasonal activity patterns and genetic variation in contrasting populations of the **California Brown Pelicans**.

Anderson is currently conducting radiotelemetry studies on the basic biology of **Brown Pelicans** to determine seasonal movement and activity patterns for oil-damage assessments. He will also be working with **Bill Sydeman** at PRBO to assist CDFG in establishing baseline data and conducting damage assessments for **Common Murres**, using similar techniques. **Anderson** and **Palacios** will also continue long-term monitoring of **Brown Pelicans** and other seabirds in the Gulf of California.

D. Michael Fry is conducting a toxicity study to examine petroleum and dispersant effects on isolated red blood cells, as a model for hemolytic anemia of seabirds exposed to oil. He is continuing his work on pollutants in seabird eggs along the Pacific Coast. A study is in progress on mitochondrial DNA sequencing in **Marbled Murrelets** and **auklets**, comparing California and Alaskan populations. **D. Michael Fry** and **Dan Anderson** continue their telemetry studies on the recovery of **Brown Pelicans** following release from cleaning centers.

Jay Davis is conducting his Ph.D. research with **D. Michael Fry** on the ecology and pollutant exposure in cormorants in San Francisco Bay and the Delta.

Michael Bonnell and **Breck Tyler**, at the University of California, Santa Cruz,

are conducting monthly aerial surveys of marine birds and mammals in Monterey Bay, the Gulf of the Farallones, and other state waters. This work is done under contract with CDFG as part of the State's Oil Spill Prevention and Response program. The survey team, which also includes **Ken Briggs**, **Mark Pierson**, **Dave Lewis**, and **Dan Varoujean**, participated in the recent oil spill "drill" in Los Angeles, providing real time data on animal distributions at sea to facilitate response decisions.

Jean Takakawa

Southern California

Pat Baird and three of her students presented papers on their foraging ecology studies on **California Least Terns** at the combined AOU/Wilson/Cooper meetings in Missoula, Montana in June. The study, funded by the U. S. Navy, continues and will be expanded in 1995 to include more colonies. In part because of the detailed work of four of her students on an ecological characterization of southern foredune habitat in Port Hueneme, a proposal for an RV park adjacent not only to a remnant southern foredune/wetland but also to a **Least Tern** colony, was denied by the California Coastal Commission in September. Roosting **Least Terns** and nesting **Western Snowy Plovers** were to have been displaced by the park. Pat also presented a poster at the International Ornithological Congress in Vienna in August.

Lisa Ballance just recently received a second year of funding as an NRC post-doctoral student. She is working in conjunction with **Robert Pitman** and **Steve Reilly**. They are preparing to go on cruise in the tropical Indian Ocean from February through August to study community ecology of seabirds and marine mammals and their prey. Ship time will be paid for by the NMFS labs. The primary research purpose of the ship is for oceanographic projects, and most of time they will be between 20 degrees latitude north and south. They will be comparing the community ecology of the Indian Ocean with that of the tropical eastern Pacific Ocean, with which they are more familiar. One of the main questions they will be asking is: are subsurface predators as important for seabirds in the Indian Ocean as they are in the eastern Pacific Ocean?

Donna Brewer continues on her round-the-world cruise with her husband on their sailboat. Currently she is somewhere in between the Pacific and Atlantic oceans.

Charlie Collines continues to supervise some **Least Tern** and **Snowy Plover** projects in southern California, some of which are funded by the U. S. Navy. He also is "on the circuit," giving talks at various Audubon groups throughout the southland. He has a graduate student studying winter distribution of **skimmers**.

Mary Beth Decker still hopes to be graduating from UCI in March of 1995 with her Ph.D. She will be continuing her work on seabird use of fronts around the Pribilof Islands and will also be studying auklet foraging at small scale features in the western Aleutian Islands.

Although still a California resident, **Jan Dierks** is been the proud owner of **Columbine Cabins**, 30 miles north of Steamboat Springs, Colorado. It is an old mining town which she and her husband are restoring. Probably not a lot of seabirds pass over but she's still looking. If anyone wants to come up for a non-marine retreat from civilization, apparently this is the place!

Hugh Ellis is finishing up his analyses on thermoregulation in **Brown Noddies** off of Hawaii. He is also studying energy budgets of **Eared Grebes** at Mono Lake (not an easy task with so many of them and with the high predation rates there). Hugh is also spending many hours heading up the Marine Studies program at the University of San Diego.

Bill Everett is still conducting his long-term studies at the Coronado Islands, the mouth of the Colorado River and on Guadalupe Island. Somehow, in between all of these projects, he is organizing the January meeting of the PSG in San Diego as well as spearheading the effort to prepare a package to propose "endangered species" status to the **Xantus' Murrelet**.

Judith Latta Hand, along with **Sheila Mahoney** (Florida Atlantic University), organized and spoke at the well-attended "Women in Ornithology" seminar at the combined AOU/Cooper/Wilson meetings in Missoula in June. She is currently writing a book, "The Voice of the Goddess," about the Minoan civilization of Crete, applying her well-hewn research techniques in science to those in archeology and pre-history.

Kathy Keane (married in July to a

geologist), just completed a foraging study of **California Least Terns** in Los Angeles Harbor. She will soon begin analyzing **Least Tern** data from Camp Pendleton, under a grant from the U.S. Navy, to determine if there is a difference in survival to adulthood of chicks produced by two-year olds versus those produced by more experienced birds.

Lloyd Kiff recently left the Western Foundation of Vertebrate Zoology.

John Konecny, USFWS, is monitoring **Black Skimmers**, **Caspian**, **Forster's**, **Elegant**, **Least**, **Gull-billed** and occasionally **Royal terns** at the Western Salt works in south San Diego Bay. He is colorbanding their chicks. Likewise, noting that **Double-crested Cormorants** have built nesting platforms on an old dredge crane at the Saltworks (the only mainland nesting of this species south of San Francisco), he is proposing that similar structures be built in Mission and San Diego bays and Long Beach Harbor to encourage mainland nesting of this species.

Pat Mock is keeping very busy continuing to supervise research on waterbird foraging in San Diego Bay and doing waterbird studies in the Salton Sea. Likewise, he is working on regional planning for biodiversity in general, and for **California Gnatcatcher** population viability in specific, in San Diego County, and also on the effects of helicopter noise on **Least Bell's Vireos** at Camp Pendleton.

Mark Pierson is involved in a population study on San Miguel Island, funded by the U. S. Navy, focusing on **Xantus' Murrelets** and storm petrels, mainly **Ashy**, **Leach's** and **Black**. With **Mike McCrary**, he is studying shorebird distribution along the shoreline of Ventura County. He is also involved with California Fish and Game's OSPR (oil spill prevention and response) group and is currently in the training phase with **Breck Tyler** (UC Santa Cruz). The thrust of this training is to conduct seabird and marine mammal surveys, in case of an oil spill, collecting real time data in advance of a slick in order to assess impacts.

Paula White is taking a hiatus from seabirds and is studying spotted hyenas in eastern Africa with **Lawrence Frank** (U.C. Berkeley) for the next six months.

Eric Woehler is finishing his Ph.D. at UC Irvine, (which, according to **George Hunt**, his major professor, will be done by 31 March), looking at food consumption by

high-latitude seabirds in both arctic and antarctic systems. He is also modeling bioenergetics of seabirds at sea. With George, he is studying foraging behavior of auklets (**Least** and **Crested**) in the Aleutians (**Buldir**, **Kiska**, **Gareloi**) and physical oceanography of the region.

Pat Baird

Non-Pacific United States

In work by the National Audubon Society, the **Laysan Albatross** colonization project on Kaohikaipu Island (Oahu, Hawaii) will begin its second season in November 1995. During the first season (December 1993 to May 1994), **Stephen Kress** and **Richard Podolsky** report that albatross were sighted on the island during 28% of observation days, with as many as four individuals displaying among the decoys and sound recordings. On the Maine coast, **Kress** began a colonization project with **Razorbills** at Seal Island National Wildlife Sanctuary, and continued similar studies with **Common Murres** on Matinicus Rock. **Kress** also continued studies of aversive taste conditioning for reducing predation of **Black-crowned Night Herons** on Roseate and **Common Tern** chicks, and studied nocturnal abandonment of terns in response to night-heron predation. Studies of tern chick provisioning continued at six Maine colonies.

At the University of Wyoming, **Clayton Derby** and **Jim Lovvorn** studied the diets of **Double-crested Cormorants** and **White Pelicans** on the North Platte River for a second summer. **Cormorants** again fed mainly on suckers, dace, and minnows from their arrival in spring until trout were stocked in early June, after which they ate mostly trout. **Pelicans**, which were much more numerous, consumed mostly suckers and dace throughout the spring and summer.

Jim Lovvorn

Pacific Rim

Significant restoration work has begun at Midway Atoll. With funding from the U.S. Navy and technical assistance from

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Book Reviews

Bird Migration. A General Survey by Peter Berthold. 1994. Oxford University Press, New York. x + 239 pp., 50 figures. ISBN 0-19-854692-0, cloth \$52.50; ISBN 0-19-854691-2, Paperback \$26.50.

Over the last two decades our understanding of bird migration has greatly increased. The author, Peter Berthold, is one of the leading German researchers of migration. His book is a good overview of the field. At the same time, it is not a thorough and detailed text. Written by a European, the book is, perhaps, light on the American literature, but is a good introduction to the large and impressive work being done in Europe.

Most studies of migration have involved passerines. This book concentrates on these birds, with less attention to non-passerines. Among the larger birds, the greatest attention is given to the European White Stork *Ciconia ciconia* about which a great deal is known. Seabirds are hardly mentioned.

The book includes an introduction and 11 chapters of which four are most important and make up the bulk of the book. A chapter on current methods of studying bird migration summarizes the various methods used. The phenomena of bird migration describes the many kinds of movements from irruptions to nomadic movements to the seasonal migrations between breeding and non-breeding areas. The rest of the book deals primarily with the movements between breeding and non-breeding areas. A chapter on physiological bases and control of bird migration describes the exciting work that has been done in Germany on physiological changes in birds associated with migration as well as the large-scale breeding and genetic studies. These include breeding experiments on partially migratory populations in which birds were selected for their tendency to migrate. The results suggest that with strong selection, it would take only a few generations for a population to consist of all migratory or all sedentary birds. A chapter on orientation mechanisms describes the various orientation mechanisms and theories on orientation. As the author notes, this chapter is taken largely from a volume on the subject edited by Berthold in 1991.

I enjoyed the book and thoroughly recommend it as a summary of the field and introduction to the large amount of work being done in Europe.

Malcolm C. Coulter, P. O. Box 48,
Chocorua, New Hampshire 03817

Mediterranean Marine Avifauna: Population studies and conservation. MEDMARAVIS & X. Monbailliu (eds.). NATO ASI Series G., vol. 12. pp. 535, ISBN 0-387-16092-2. Springer, Berlin. 1986.

In this book we find the proceedings of the First Mediterranean Seabird Symposium, held at Alghero, Sardinia in 1986, called together by the then newly founded Medmaravis Association with support of NATO's research branch. Normally we would not review a book printed eight years ago, but in our journal we already reviewed (vol. 21:34) the second symposium of 1989; the first one before us was an equally important event. It is printed entirely in the English language, but there is also an Italian version.

Eight papers deal with census surveys, and notable is the one (by Meininger and Baha el Din) on seabirds along the Mediterranean coast of Egypt from where there was hardly any recent information. In the chapter on Data Banks & Census Techniques we learn by the experience of Hémery, Pasquet, and Yésou who developed population monitoring techniques along the coasts of France. P.G.H. Evans's paper on the same subject but extending it to the whole North Atlantic Ocean gives methods and data that are directly applicable to our North Pacific seabird researches. Our own researchers, Elizabeth, and the late Ralph Schreiber, write about pitfalls of census techniques.

The only endemic seabird of the Mediterranean, the rare Audouin's Gull (*Larus audouinii*) is seriously threatened by its expanding congener *L. cachinnans*, and several papers deal with this problem. Four more papers and several poster abstracts discuss population fluctuations and ecologies of larids, one, but a very interesting one, with biometrics of the Mediterranean populations of Cory's Shearwater, *Calonectris diomedea*, by Massa and lo Valvo of Italy. The last nine papers, on conservation and management problems, lead to the resolutions concluded by this

important and well attended gathering of seabird researchers and managers, published in English, French, Italian and Spanish on behalf of study and conservation of seabirds.

M. D. F. Udvardy, Department of
Biological Sciences, California State
University, Sacramento, California
95819, USA

Bird Populations: A journal of global avian biogeography. Published annually by The Institute for Bird Populations. P. O. Box 1346, Point Reyes Station, CA 94956-1346, USA. ISSN 1074-1755. Subscription with membership in the Institute (taxfree in the USA) is USD 35 per year.

As the editors state that "A major goal of *Bird Populations* is the printing or reprinting of the annual reports of the major avian monitoring programs from around the world," the bulk of this issue is taken up by annual reports of various population monitoring survey reports, eight from the U.K., and two from the USA. The first issue, of 1993, contains three research papers, one of them dealing with a seasonal coastal seabird, *Gavia adamsii*, by M. R. North.

The 1994 issue, now in the press, will have two papers of seabird interest. Peter Pyle and David F. Desante are writing about trends in waterbird and raptor populations at Southeast Farallon Islands, California 1974-1993. Janet M. and Timothy C. Williams's paper concerns seabird density observed at two circumnavigations in the tropic, subtropic, and subarctic Pacific Ocean.

We wish success to the editors of the new journal.

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95819, USA

Books received

A Field Guide to the Birds of Borneo, Sumatra, Java, and Bali. 1993. John MacKinnon and Karen Phillipps. Oxford University Press. (\$85.00 cloth; 489 pp; color plates; ISBN 0-19-854035-3).

The Birdwatcher's Handbook: A Guide to the Natural History of the Birds of Britain

and Europe. 1994. Paul R. Ehrlich, David S. Dobkin, Darryl Wheye, and Stuart L. Pimm. Oxford University Press. (\$22.00; 660 pp; ISBN 0-19-858407-5).

Other books of interest

Seabirds on Islands: Threats, Case Studies and Action Plans. Edited by D. N. Nettleship, J. Burger, and M. Guchfeld. Bird Life International, Cambridge, UK. 318 pp. (ISBN 0-946888-23-X)

Proceedings of the Seabird Specialist Group Workshop held at the XX World Conference of the International Council for Bird Preservation, University of Waikato, Hamilton, New Zealand, 19-20 November 1990.

This book contains articles on major topics of conservation concern for seabirds. It brings together the work of some of the world's leading seabird specialists and describes the status of island nesting seabirds around the world with details of threats and action plans for conservation. It includes major papers from the Seabird Specialist Group Workshop held in New Zealand. (Part of the New Birdlife Conservation Series, World Bird Club, Birdlife International, Wellbrook Court, Girton Road, Cambridge CB3 0NA, UK.)

Regional Reports Continued from page 29

USDA Animal Damage Control, the U.S. Fish and Wildlife Service (Service) has begun a rat (*Rattus rattus*) eradication program on Eastern and Spit Islands. To date the program has reduced rat populations by at least 90%. The Service plans to continue with this effort until it is complete.

The U. S. Navy has also begun to identify and cleanup environmental contaminants and wildlife hazards at Midway in preparation for base closure. To date over 100 underground fuel storage tanks have been removed from Sand Island. Many of the tanks have leaked and efforts are underway to identify the extent of soil and ground water contamination. Miscellaneous hazards are being removed from Eastern Island. These hazards include pits which

Thick-billed Murre masturbating on grass clump

Atypical (?) sexual behavior among murre (reverse mounting, several males mounting the same female simultaneously, etc.) is not unusual among Thick-billed Murres, which seem to have great enthusiasm for copulation (see Birkhead 1993, "Great Auk Islands"). However, despite aggregating many hundreds of hours of observations on the species, we have never previously witnessed masturbation. On 16 June 1994, while conducting a watch designed to quantify rates of copulation in relation to age at Coats Island, NWT, we both separately witnessed one Thick-billed Murre repeatedly copulate with a tuft of grass. The masturbation took place on an area of grass 1m above a broad ledge used mainly by prospecting murre 2-4 years old. The bird involved was not banded, but seems cer-

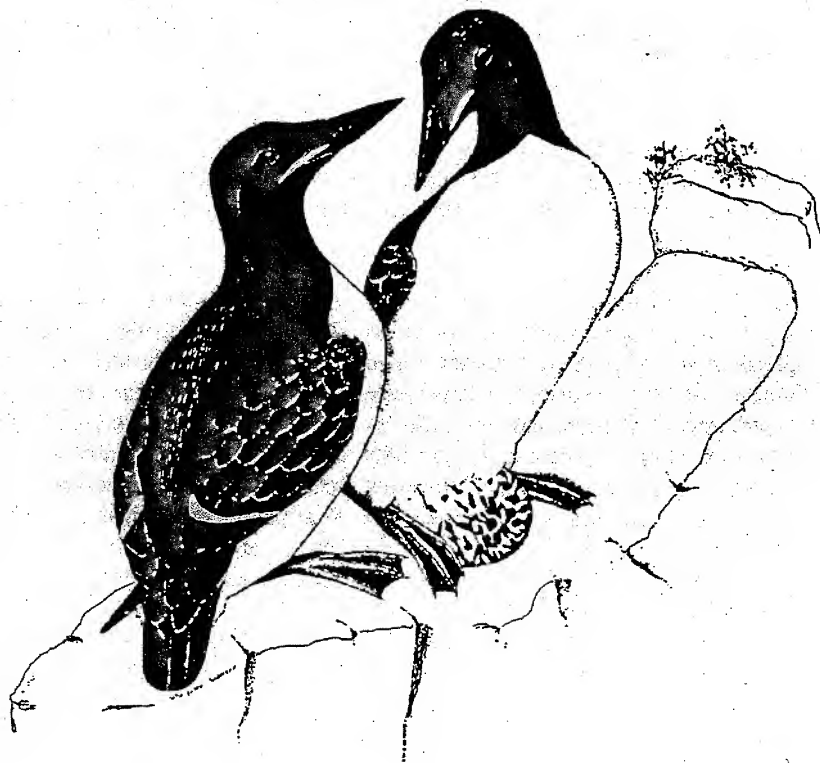
tain to have been the same one each time. On at least four occasions we saw the bird land on the grass (unusual, because most birds only landed on the rocky ledge) and proceed to "tread down" a grass tuft, as though positioning itself on the back of a female. Facing uphill, it curled its tail under the tuft, as though under the females tail, and gave every indication of going through the full copulation routine, spending several seconds on each contact. We did not examine the grass for signs of semen (there was a cliff in the way), so we cannot be sure that sperm was ejaculated. The fact that the bird repeated the behavior several times suggests that it obtained positive reinforcement from it. We believe that this is the first observation of masturbation in a wild alcid.

Tony Gaston, Kaj Kampp

entrap seabirds, wire, and old antennas which were dumped along shorelines. Combined with rat eradication this cleanup will significantly improve conditions for sea-

birds, sea turtles and Hawaiian monk seals at Midway.

Ken McDermond



Abstracts of the 41st Annual East Pacific Ocean Conference

The 41st Annual East Pacific Ocean Conference was held September 28 through October 1, 1994 at the Timberline Lodge, Mt. Hood, Oregon. Thirty-five papers and posters were presented covering a wide range of biological and physical oceanography topics. The abstracts of three papers of possible interest to students of marine birds appear below. Copies of the full set of abstracts are available from S. Speich. [Abstracts should not be cited without the permission of authors.]

Distribution of Zooplankton Biomass in the California Current during Summer, 1993.

Carin J. Ashjian and Sharon L. Smith (Rosenstiel School of Marine and Atmospheric Sciences, University of Miami, Miami, FL), and Charles N. Flagg (Oceanographic and Atmospheric Sciences Division, Brookhaven National Laboratory, Upton, NY)

The distribution of zooplankton biomass in the California Current was estimated using the acoustic Doppler current profiler (ADCP) during two cruises surveying the current in 1993 (June-July, August-September) as part of the Eastern Boundary Current program. Both the mesoscale regional distributions and small-scale distributions in individual features (jets, eddies) were described during this multi-investigator project. The goals of the zooplankton portion of the program were to describe the association of the zooplankton biomass with physical features of the current and to identify the influence of physical forcing on the biomass patterns. Additionally, this project offered the opportunity to compare distributions of zooplankton biomass obtained using two different methods, the single frequency ADCP and the Sea-Soar mounted optical plankton counter, and to compare these distributions to the physical field and to the distribution of phytoplankton.

Preliminary examination of areal and vertical distributions of zooplankton biomass from the two cruises reveals the importance both of biological mechanisms, such as diel vertical migration, and physical forcing,

such as advection, in determining the biomass distributions. The effect of physical forcing was especially evident during the June cruise, when nearshore water was entrained in a meander of the California Current jet, injecting high zooplankton biomass offshore. Although diel vertical migration produced dramatic and obvious patterns in the vertical distributions of biomass, changes in biomass associated with physical features were the dominant signal in the areal distributions of integrated biomass.

Circulation near Cape Blanco, Oregon. J.A. Barth, R.L. Smith and A. Huyer (College of Oceanic & Atmospheric Sciences, Oregon State University, Corvallis, OR)

The coastal upwelling region from 43.5° to 41.5° N off Oregon near Cape Blanco was explored using CTD on SeaSoar, ADCP, satellite SST and surface drifters from 23 Aug to 2 Sep 1994. For five weeks prior to the cruise, the normally strong upwelling favorable winds were more variable than usual. During the cruise, winds were upwelling favorable. Dynamic height topography, subsurface property distributions and satellite SST show that during the first part of the cruise there was a connection of coastal waters with a cyclonic eddy offshore but within 5 days the connection was weakened. SeaSoar CTD and ADCP sections were made across the shelf and slope to about 60 km offshore at 12 locations between 43.5° N and 41.5° N shore; several sections were repeated during the cruise. Coastal upwelling was evident in all sections: the temperature at 11 m decreased from > 18°C offshore to 12°C or less inshore, and the 33 isohaline was near the surface at the coast but below 80 m offshore of 40 km. Separation of the coastal upwelling front and jet from the shelf during the early part of the cruise was evident in subsurface property distributions. Additional sections were made across the front as it swerved offshore. The intersection of the 33 isohaline with 55 m roughly marked the location of the coastal upwelling front and jet. Early in the cruise the 33 isohaline was continuous

on the 55 m surface from over the inner slope at 43° N to nearly 140 km offshore at 42.5° N, curving back to the coast at 42° N. In the second part of the cruise the intersection of the 33 isohaline with 55 m was within 40 km of the coast from 41.5° to 43.5° N.

Three satellite-tracked surface drifters were deployed north of Cape Blanco in the equatorward flowing upwelling jet. The drifter releases spanned the shelf break (20 km offshore) with the most inshore deployment (over the 100 m isobath) separated from the most offshore release by only 12 km. After transiting south for 35 km at 40 cm_s in the upwelling jet, the three drifters exhibited very different trajectories consistent with dynamic height topography. The two outermost drifters swept offshore in the separating jet reaching speeds > 60 cm_s along the northern limb of the cyclonic gyre. This pair remained together for 3 days reaching over 100 km offshore, after which one drifter followed weak flow to the NW and was 300 km offshore 12 days after deployment, while the other continued to follow the cyclonic eddy circulation executing at least one revolution around the roughly 80 km diameter eddy with speeds 20-60 cm_s. In contrast to the offshore fate of the outer drifters, the inshore drifter was carried only 35 km offshore in the separating jet, but then swept back onshore south of Cape Blanco, approaching within 11 km of the coast at one point. This drifter followed the dynamic height contours along the equatorward upwelling jet inshore of the pinched-off cyclonic eddy and after 11 days was 200 km south of its release point.

Coastal and Large-Scale Circulation of the Peru-Chile Current System. P. Ted Strub, J. Mesias and Corinne James (College of Oceanic & Atmospheric Sciences, Oregon State University, Corvallis, OR), Vivian Montecino and Jose Rutllant (Universidad de Chile, Santiago, Chile), and Sergio Salinas (Universidad Catolica de Valparaiso, Chile)

Off Peru the equatorward Peru Current flows northwest into the South Equatorial Current at the surface. The Equatorial Undercurrent splits at the Galapagos into a branch that flows along the equator to Ecuador to become a poleward undercurrent (which extends to the surface) and a branch that comes to the surface and reaches Peru around 7°S as an offshore Peru-Chile Count-

tercurrent. Thus, much of the flow off Peru is poleward and the upwelling system is primarily confined to the upper 50 m. Upwelling-favorable winds off Peru are strongest in austral winter and the surface layer displays a clear response to wind events around "upwelling centers." Below 50-60 m depth, there is little correlation between local winds and currents and the primary source of variability over the shelf is the passage of poleward coastal trapped waves. The poleward undercurrent is found over the shelf break (as off N. America) and the countercurrent (with no N. American counterpart) is found 100-300 km offshore, with a maximum in austral spring. Both undercurrent and offshore countercurrent flow as far south as central Chile (35°-45°S), but the connection between the undercurrent and offshore countercurrent off central Chile is unclear. The regions off Ecuador, Peru and northern Chile are those affected by warm ENSO events, in well documented fashion.

Wind forcing is upwelling-favorable all year but weak off northern Chile (which may provide a large-scale analog of the Southern California Bight). Winds are stronger and seasonal off central Chile, but upwelling-favorable winds are weaker than off N. America. The equatorward currents associated with upwelling stay closer to the coast off Chile than off N. America at similar latitudes and are separated from the larger equatorward flow of the Humboldt Current by the countercurrent. In summer the coastal currents carry fresh water from the south and have been called the Fiord Current. The upwelling system appears to be deeper off central Chile than off Peru and brings water to the surface from the undercurrent, which is extremely oxygen poor. Upwelling also occurs preferentially at discrete "upwelling centers" off Chile, where colder filaments extend offshore 100-200 km during upwelling events lasting a week or so. Thus, time scales of these events are similar to those off N. America but offshore scales of extent are smaller. A similar phase relation is found between wind forcing, nutrient enrichment and chlorophyll increases off Chile as off N. America (wind and nutrient-enrichment lead chlorophyll increase, which is seen primarily during wind relaxations).

Seabird 16

Edited by Sarah Wanless
Produced by The Seabird Group

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Do Great Skuas *Catharacta skua* respond to changes in the nutritional needs of their chicks?

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D. J. Halley and M. P. Harris

Courtship behaviour in offshore Kittiwake *Rissa tridactyla* flocks prior to the breeding season.

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Mesopelagic fish eaten by Yellow-legged Herring Gulls *Larus argentatus atlantis*.

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Manx Shearwaters *Puffinus puffinus* breeding in the Bailiwick of Guernsey, Channel Islands.

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The effects of disturbance on growth rate and survival of young Razorbills *Alca torda*.

Peter Lyngs

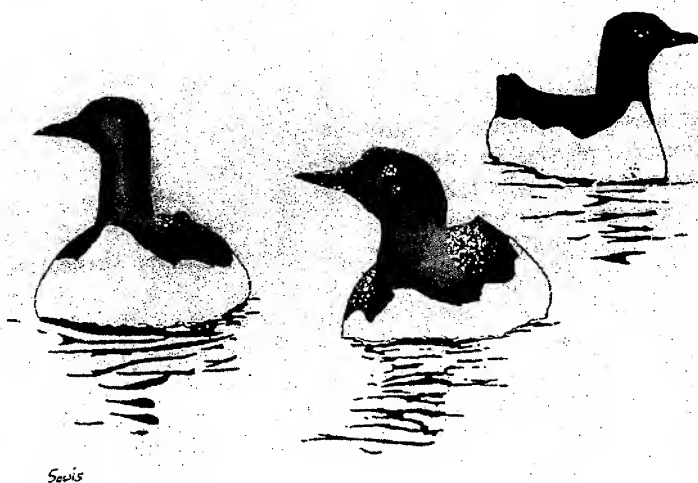
An analysis of Shag *Phalacrocorax aristotelis* ring recovery and breeding success data during a period of population change on the Isle of Canna.

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Andouin's Gulls in Senegambia.

A. J. del Nevo, S. Rodwell, I. M. W. Sim, C. R. Saunders and T. Wachter

Institute of Terrestrial Ecology, Hill of Brathens, Banchory, Kincardineshire, AB314BX United Kingdom



Sewis

Bulletin Board

Workshop on the Status and Management of Cormorants in the Eastern Pacific Pacific Seabird Group Meeting, January 13, 1995

This is a scoping workshop to identify issues about Cormorant management that should be addressed by the Pacific Seabird Group, conservation organizations, and state and federal agencies. Cormorant management is of interest to both the Pacific Seabird Group and the Colonial Waterbird Society (CWS), so plans may be made for a larger workshop at the 1996 joint meeting with CWS. Some concerns may be unique to one organization or another and these should be identified and addressed if necessary. Suggested discussion topics include: 1) public attitudes towards cormorants: Myth versus truth and what should be done? 2) Population status of Double-crested, Brandt's, and Pelagic cormorants: Are there concerns? 3) Mitigation and protection versus control of depredation: policy conflicts or creative management? 4) Cormorants as environmental indicators: pros and cons. 5) Human disturbance of cormorant colonies. 6) Cormorants and fish depredations: Developments over the last year. Lora Leschner, Washington Department of Fish and Wildlife, is organizing the two hour workshop. For more information, please call her at: (206) 775-1311 ext. 121 or write to her at Washington Department of Fish and Wildlife, 16018 Mill Creek Blvd., Mill Creek, WA. 98012.

Fourth International Conference on "The Effects of Oil on Wildlife" April 12-14, 1995 Seattle, Washington

The Fourth International Conference on "The Effects of Oil on Wildlife" is a multidisciplinary conference sponsored by Alyeska Pipeline Service Company and hosted by the International Bird Rescue Research Center. The conference is designed for industry response personnel, federal and state response coordinators, government and academic researchers, veterinarians, contingency planners, natural resource damage assessors, and wildlife

rehabilitators. As an international forum, the conference will feature speakers from around the globe and emphasize inter-agency and industry preparedness, as well as wildlife rehabilitation techniques. Papers will be published in the proceedings, which will be available at the conference. Pre-conference workshops on Basic Oiled Wildlife Care, Advanced Oiled Wildlife Care, and Crisis Management & Media Relations will be held on April 11, 1995. For general information call Cathy Rineer-Garber, (206) 423-3649.

4th Medmaravis PanMediterranean Symposium Tunisia 11-16 April 1995

The Tunisia Symposium will have four main sessions: Coastal Biodiversity in North Africa, Population Ecology of Seabirds in the Western Mediterranean, Population Ecology of Seabirds in the Western Mediterranean and Black Sea, and Conservation and Coastal Zone Management. Languages: French and English, with simultaneous translations. A day excursion to Tunisia's most famous seabird island—Zembra—will also be organized. Papers and poster presentations related to the sessions' titles will be most welcome. Contact John G., Walmsley, Medmaravis BP.2 83470 Saint Maximin, France. Tel. (33) 94 59 40 69, FAX (33) 94 59 47 38.

Positions Available Biological technician, GS-5

The Hawaiian Islands National Wildlife Refuge is recruiting applicants to fill positions working on Laysan Island. The length of the positions vary, but will average from 3-6 months in duration. The project is ongoing, with several positions available over the next year. The incumbents will spend about 60% of their time on control/eradication of the alien plant *Cenchrus echinatus* and about 40% on habitat and wildlife monitoring projects. Vegetation control includes use of herbicides (Rodeo) and manual techniques. Remote living experience and experience working with seabirds or colonial nesting birds is preferred but not required. Opportunities exist to integrate a graduate level thesis project as part of the work. Laysan Island is a remote uninhabited island 850 miles northwest of

Honolulu. Technicians live and work under primitive camp conditions. Work involves carrying heavy backpacks on soft sand and exposure to extremes of sun and wind. Communications with the outside world are limited to irregular radio contacts with Honolulu. To apply, send a current SF-171, a transcript or CSC 1170/17, and Pre-Appointment Certification Statement for Selective Service Registration. Forms and more information can be obtained by contacting Marc Webber at the Hawaiian Islands National Wildlife Refuge, P.O. Box 50167, Honolulu, Hawaii 96850 (808-541-1201). PREVIOUS APPLICANTS NEED NOT REAPPLY TO BE CONSIDERED.

Volunteer Interns Needed

Volunteer interns are needed for summer 1995 to work on a variety of seabird projects in Alaska. Depending on funding, may need up to 10 people for periods ranging from 3 weeks to 4 months. Field work in 1995 may include ship-based seabird surveys in the eastern Aleutians, at-sea and colony-based seabird surveys and trawl-net fishing in lower Cook Inlet, and boat- and land-based surveys in Glacier Bay National Park. Looking for enthusiastic people with experience in pelagic seabird surveys, colony studies, diet studies, fish identification, and computers. Experience with small boats a definite asset. Weather is often cold, wet, and wild. Applicants should be in good physical condition and able to work well with others under cramped field conditions. Lodging, food expenses, and a minimal per diem are provided. Travel to Alaska will be covered for longer-term positions. Possibilities for graduate student collaboration in research projects on seabird foraging, hydroacoustics, oceanography, forage fish, and breeding biology. Send resumes (with phone numbers of three references, current address, and contact numbers) and cover letter expressing your particular interests to Dr. John Piatt, National Biological Survey, 1011 Tudor Road, Anchorage, Alaska 99503. Or call 907-786-3549, FAX 907-786-3636, e-mail R8AFWRC@MAIL.FWS.GOV.



Published Proceedings of Symposia of the Pacific Seabird Group

At irregular intervals the Pacific Seabird Group holds symposia at its annual meetings. The published symposia are listed below. For availability of individual symposia contact the Technical Editor of Pacific Seabirds.

Shorebirds in Marine Environments. Frank A. Pitelka (Editor). Proceedings of an International Symposium of the Pacific Seabird Group, Asilomar, California, January 1977. Published June 1979 in, *Studies in Avian Biology* Number 2.

Tropical Seabird Biology. Ralph W. Schreiber (Editor). Proceedings of an International Symposium of the Pacific Seabird Group, Honolulu, Hawaii, December 1982. Published February 1984 in, *Studies in Avian Biology* Number 8.

Marine Birds: Their Feeding Ecology and Commercial Fisheries Relationships. David N. Nettleship, Gerald A. Sanger, and Paul F. Springer (Editors). Proceedings of an International Symposium of the Pacific Seabird Group, Seattle, Washington, January 1982. Published 1984 as, Canadian Wildlife Service, Special Publication.

Ecology and Behavior of Gulls. Judith L. Hand, William E. Southern, and Kees Vermeer (Editors). Proceedings of an International Symposium of the Colonial Waterbird Group and the Pacific Seabird Group, San Francisco, California, December 1985. Published June 1987 in, *Studies in Avian Biology* Number 10.

Auks at Sea. Spencer G. Sealy (Editor). Proceedings of an International Symposium of the Pacific Seabird Group, Pacific Grove, California, December 1987. Published December 1990 in, *Studies in Avian Biology* Number 14.

Status and Conservation of the Marbled Murrelet in North America. Harry C. Carter, and Michael L. Morrison (Editors). Proceedings of a Symposium of the Pacific Seabird Group, Pacific Grove, California, December 1987. Published October 1992 in, *Proceedings of the Western Foundation of Vertebrate Zoology* Volume 5, Number 1.

The Status, Ecology, and Conservation of Marine Birds of the North Pacific. Kees Vermeer, Kenneth T. Briggs, Ken H. Morgan, and Douglas Siegel-Causey (Editors). Proceedings of a Symposium of the Pacific Seabird Group, Canadian Wildlife Service, and the British Columbia Ministry of Environment, Lands and Parks, Victoria, British Columbia, February 1990. Published 1993 as, Canadian Wildlife Service, Special Publication, Ministry of Supply and Services, Canada, Catalog Number CW66-124-1993E.

Biology of Marbled Murrelets—Inland and at Sea. S.K. Nelson and S.G. Sealy (Editors). Proceedings of a Symposium of the Pacific Seabird Group, Seattle, Washington, February 1993. Published in 1994 in *Northwestern Naturalist*, Volume 75, Number 3.



PACIFIC SEABIRD GROUP EXECUTIVE COUNCIL 1994

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